the alaska economic information & reporting system

quarterly report

january 1980

alaska division of economic enterprise

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THE ALASKA ECONOMIC INFORMATION AND REPORTING SYSTEM

QUARTERLY REPORT JANUARY 1980

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FORWARD

In this report we present and discuss our current CONTROL or "best judgement" forecast of the Alaska economy. While this is an econometric forecast in the sense that it has been made with the AEIRS quarterly econometric model, it is not solely the product of that model. Where it seemed appropriate we have judgementally adjusted the forecast to take account of recent information on the pace of economic activity, and have also fine tuned the model where preliminary testing suggested the need. This is standard practice and reflects the fact that economic model building is still an imperfect art.

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SUMMARY

This issue of the AEIRS **Quarterly Report** extends the forecast horizon through 1982.

Despite the general dullness of Alaska's overall economic performance in 1979, it is reasonable to presume that the post-pipeline letdown has finally bottomed out. With interest rates now widely forecasted to be on the decline, with a countercyclical fiscal 1981 State government budget in the offing and with business confidence buoyed some by the December Beaufort Sea oil lease sale, 1980 can be expected to show an upturn in jobs and real income. An additional element pushing the State economy ahead in this forecast is a projected D2 settlement early this year. While continued weakness in private construction will dampen the forecasted recovery, all things considered, we anticipate an increase in nonagricultural employment in 1980 of 2.1 percent, followed by gains of 4.2 percent in 1981, and 5.1 percent in 1982. An important point is that these gains are not premised on startup during the period of Alpetco, the Pacific Alaska LNG facility, or the Northwest Alaska gas pipeline project. Section III discusses a special simulation of the AEIRS model in which these three projects proceed on their respective nominal schedules.

Startling news on the inflation front! The Anchorage all urban consumer price index was up only 0.2 percent in November from its September level, an annual rate of increase of only 1.4 percent. Almost certainly, this dramatic dropoff in inflation is a product of the economic slowdown experienced this year in Anchorage. Unfortunately, such a low rate of inflation cannot be maintained. With the national all urban consumer price index still forging ahead at double digit annual rates, November's respite is likely to be temporary. Continued crude oil price boosts from OPEC, together with some catchup as Alaska firms are forced to pass on higher wholesale prices of products produced outside Alaska, are now projected to push the Anchorage all urban index ahead at an 11.2 percent rate in 1980, and at 9.7 and 8.7 percent rates in 1981 and 1982, respectively. Further contributing to the inflation scene this year is an anticipated mini-gold rush.

With gold prices pushing $700 per ounce, a small flood of independent prospectors can be expected to begin arriving before the spring thaw unless gold prices fall back below about $500 an ounce. If a D2 settlement is reached in the next three months some of the larger mining companies will dust off contingency plans and expand their Alaska exploration efforts.

At no time since this REPORT was first published has there been greater uncertainty surrounding the estimates of future economic activity. The Iranian crisis, the Soviet invasion of Afghanistan, skyrocketing gold prices and unrest in World energy markets have potential consequences of such magnitude that there is at least a fifty percent chance that the future will differ significantly from this forecast. Results of the special simulation of Alpetco, Pacific Alaska LNG, and the gasline project can be viewed as an upper limit to short term growth possibilities. A realistic lower limit cannot be defined. It depends too heavily on the shape of World events and on the responses to these events both in Washington and in Juneau.

THE ALASKA ECONOMY
PERFORMANCE SUMMARY
1976 to 1982

	History			Forecast			
	1976	**1977**	**1978**	**1979**	**1980**	**1981**	**1982**
Nonagricultural Employment	173,499	166,066	163,191	164,648	168,181	175,279	184,254
Percent Change	+6.5	-4.3	-1.6	+0.9	+2.1	+4.2	+5.1
Resident Personal Income 1/	4.195	4.314	4.415	4.696	5.544	6.356	7.395
Percent Change	+18.9	+2.8	+2.3	+6.4	+18.1	+14.6	+16.3
Anchorage CPI (1967=1.000) 3/	1.641	1.751	1.875	2.074	2.306	2.529	2.749
Percent Change	+6.5	+6.7	+7.1	+10.6	+11.2	+9.7	+8.7
Bank Deposits 2/	1472.2	1607.0	1749.1	1810.2	2040.6	2351.3	2643.9
Percent Change	+12.9	+9.2	+8.8	+3.5	+12.7	+15.2	+12.4
Savings and Loan Deposits 2/	173.5	206.0	216.3	220.6	225.5	253.5	289.2
Percent Change	+22.0	+18.7	+5.0	+2.0	+2.2	+12.4	+14.1

1/ Billions of dollars. Revised.

2/ Millions of dollars. Average of January, April, July, and October end of month deposits for S&L's; average of March, June, September, and December end of month deposits for banks.

3/ Index for all urban workers.

Note: Nonagricultural employment in 1976 and 1977 exceeds present official Department of Labor estimates by the amount of an anticipated upward revision in local government employment.

II. CONTROL FORECAST

Indications are that in 1979 a small gain of about one percent in the number of nonagricultural jobs (people working for other people) was partly or totally offset by job losses among the self-employed. Were it not for job gains under the federal govenment's Comprehensive Employment and Training Act program (CETA), total nonagricultural employment would have unquestionably declined.

There were two primary causes of economic weakness in 1979: (1) unexpectedly high inflation that was not fully offset by higher money incomes and thus eroded real after tax incomes and real buying power (real resident personal income is estimated to have declined by 3.8 percent in 1979); and (2) record high interest rates, tight money and uncertainty over Alaska's economic future which together produced an exceptional slowdown in construction activity. In addition, a relatively austere fiscal 1980 State government budget failed to pick up the slack. Strong showings by the tourist industry and by the fishing industry were simply not enough to offset the weakness elsewhere.

Despite the general dullness of last year's economic performance, it does appear that Alaska's post-pipeline letdown has finally bottomed out. With declining interest rates and a countercyclical fiscal 1981 state government budget now in the offing, 1980 should show a distinct improvement over 1979, particulary so if business confidence improves. Of no small importance in lifting confidence is the fact that the Beaufort Sea oil lease sale was held on schedule. That sale has signaled a willingness on the part of the State and the federal government to work together to achieve the development of Alaska's resources.

EMPLOYMENT IN 1980

The employment outlook for 1980 is good, primarily because 1979's negative pressures will weaken. The following factors should combine to produce a net economic gain next year by almost any measure.

> *Mortgage loans will be available at subsidized interest rates both from the Alaska Housing Finance Corporation and from those private financial institutions which agree to offer such loans in return for their receiving additional State government deposits. While much of this money will undoubtedly be used to purchase existing homes, at least some should go into home improvements and new construction. By providing the wherewithall to draw down the present large inventory of unsold homes, both programs will help to stimulate residential construction activity in 1981 and 1982.*
>
> *The State government fiscal 1981 budget will likely be somewhat more stimulative than its immediate predecessor. The present control forecast assumes that State government spending will increase by 3.5 percent in fiscal 1981, after adjustment for inflation.*

Because of widespread contractual lags in the adjustment of wage rates to inflation, nominal wage gains in 1980 should be substantial and should, therefore, prevent a further erosion of before tax buying power. A probable reduction in federal income taxes will help to increase real disposable income and real buying power (although the possibility of a substitute value added tax being passed dims this prospect somewhat). For the record, AEIRS presently forecasts a 6.2 percent increase in real resident personal income in 1980. This should be viewed alongside the 3.8 percent decline estimated to have occurred in 1979.

Federal plans call for the drilling of five new exploratory wells in the National Petroleum Reserve - Alaska (PET-4). A further boost will come from field operations at Prudhoe Bay associated with the effort to increase the flow of oil in the trans-Alaska pipeline to 1.5 million barrels per day, and keep it there until late in the decade.

There will also be some negative factors at work in 1980. While the present forecast assumes that a D2 bill will be signed early in the year, there are clearly no guarantees. If a bill is not signed early, hard rock mining activity will remain moribund despite high metals prices and growing concern over U.S. dependence on imports of key minerals. If gold prices stay above $500.00 an ounce, a surge of independent prospecting can be expected, with or without a D2 bill. The large companies, however, will wait for a lands settlement.

A second negative factor at work in 1980 is the oversupply of commercial space and residential housing units in Anchorage and Fairbanks. Statewide, the real dollar value of residential and nonresidential building permits will probably increase next year, but only because of the $150 million office/hotel complex planned for Juneau.

Finally, the CETA program has been partially cut by the Carter Administration. This could result in a direct loss of up to 2,000 jobs compared to 1979. A loss of 1,500 fulltime equivalent jobs is presently forecasted by AEIRS, with the losses concentrated in services, and in State and local government.

The present CONTROL forecast of the Alaska economy for 1980 reconciles these factors into a 2.1 percent annual average gain in nonagricultural employment over 1979. This figure is lower than the 2.8 percent gain projected last October partly because the estimate of base year employment (1979) has been increased and partly because the negative factors listed above are given greater weight than they had been before.

One important change from the October forecast is the projection of slightly declining employment in retail trade and services. A projected loss of 600 CETA jobs in services accounts for the downward revision in services employment. The previous forecast simply did not reflect the fact that CETA workers hired through Native Regional Corporation prime sponsors show up as services employment in "membership organizations." In the case of trade, the flat 1980 performance now forecasted is premised on the belief that 1979's weakness in real disposable income has had a delayed impact on the larger employers and hence on nonagricultural employment. While over 60 percent of the Alaska establishments in the retail trade industry are unincorporated enterprises, it is the larger incorporated

enterprises that provide the bulk of the nonagricultural retail trade jobs. (Nonagricultural employment excludes the self employed.)

Mining employment includes both hard rock activity and oil and gas field operations. The least certain element in the present 1980 forecast is the surge in mining activity shown this year. During the summer months almost 1,600 more mining workers are projected than were reported as employed in the summer of 1979. About one-half of this surge is in oil and gas operations (PET-4 and work at Prudhoe Bay, mostly) with the remainder in hard rock mining. The key assumptions which produce a surge of 800 workers in hard rock mining are: (1) A compromise D2 bill is passed early in the year; and (2) gold prices remain near or above $500 per ounce. In essence we are projecting a mini gold rush next summer.

For sure, many things could go wrong with such a forecast. For now, however, a mini gold rush appears to be a reasonable possibility, if not in 1980, then in 1981. At the very least one can expect to see a genuine flood of independent prospectors next year. For the most part, however, the individual independent prospector will not be reflected in the official data. For the predicted surge in "official" mining employment to occur, some of the major companies will need to get involved in renewed exploration. Our expectation is that gold will be the principal lure but by no means the only one.

EMPLOYMENT IN 1981 and 1982

The consensus opinion among Congress watchers is that a D2 bill will be signed sometime in 1980. This forecast assumes that to be the case. Premised on the early 1980 passage of D2 legislation, the surge in hard rock mining operations forecasted for 1980 is projected to continue into 1981 and 1982. Given additional projected gains in mining employment as the result of oil field operations in the Beaufort Sea, off Kodiak Island, in the Gulf of Alaska, and at Prudhoe Bay, the present forecast shows more than twice as many mining jobs in 1982 as in 1979. While gains of this magnitude may seem startling, they are not out of line with real world events. The combination of very high minerals prices, the removal of uncertainty over the status of Alaska lands, national concern over supplies of strategic minerals, and three planned oil lease sales can be expected to produce an unprecedented surge in Alaska mining activity over the next three years.

Other factors which are likely to be at work in 1981 and 1982, and which have been incorporated into this forecast include reduced interest rates, lower inflation, continued availability of credit, stong public spending, and greater commercial and residential construction activity.

What is not factored into the present CONTROL forecast is significant activity on major construction projects such as the Northwest Alaska gasline, the Alpecto refinery, and the Pacific Alaska LNG plant. All three of these projects still face considerable obstacles. Section III of this REPORT discusses a special simulation of the AEIRS model in which all three are assumed to proceed on their present nominal schedules. As one might expect, the result is a boom in 1982 of near oil pipeline magnitudes.

On an industry by industry basis, the annual average rates of employment growth shown in the present CONTROL forecast for 1981 and 1982 are: mining, 35.2 percent; construction, 11.5 percent; manufacturing, 1.9 percent; transportation, communications and public

utilities, 2.3 percent; wholesale trade, 2.3 percent; retail trade, 2.5 percent; finance, insurance and real estate, 6.9 percent; services, 1.5 percent; federal government, 1.5 percent; State government, 3.7 percent; and local government, 3.5 percent.

Total nonagricultural employment in the CONTROL forecast grows by 4.2 percent in 1981 and by 5.1 percent in 1982.

INFLATION OUTLOOK

Is the Phillips curve* alive and well and living in Alaska? At an annual rate the September 1979 to November 1979 percent gain in the all urban Anchorage consumer price index was a nearly unbelievable 1.4 percent! That is not a misprint, at least not here. Nor is it the product of a single component index dropping precipitously. On a component by component basis the two month percentage gains posted by the Anchorage CPIU were (at annual rates): food and beverages, 4.1 percent; housing, 0.0 percent; apparel and upkeep, -9.7 percent; transportation, 8.3 percent; medical care, 2.9 percent; entertainment, 4.4 percent; and other goods and services, 1.2 percent.

In contrast to the Anchorage CPIU's 1.4 percent gain (annual rate) recorded between September and November, the national average CPIU gained 12.4 percent at an annual rate for the same two month period. While we have not made an exhaustive historical comparison of Anchorage and U.S. average inflation rates, it seems likely that the November difference between the two is unprecedented.

It would be irresponsible to project a continuation of such price stability in Anchorage. November's low posted rate of inflation is almost certainly a reflection of 1979's economic slowdown in Anchorage. Increasing crude oil prices and a recovery next year in the Alaska economy should renew the upward pressure on the Anchorage CPIU. A complete cutoff of Iranian oil from World markets, caused either by internal Iranian disruptions or by overt American action, would provide ample reason for OPEC members to raise their crude oil prices even further. With domestic petroleum prices moving toward complete decontrol, and with the dollar at the point where (seemingly) anything can cause it to depreciate against other currencies, an extra round of crude oil price increases will rather quickly begin to be felt by the American consumer.

These considerations have prompted an upward revision in the rate of increase in the Anchorage all urban consumer price index (CPIU), forecasted for 1980 and 1981. In effect, the November Anchorage inflation performance is viewed here as a one shot phenomenon, presaging some catchup. On an annual average basis the Anchorage CPIU is now projected to jump 11.2 percent in 1980, and a further 9.7 percent in 1981. For the record, the 1982 increase is presently projected to be 8.7 percent. At this stage, however, the 1982 rate of inflation is anybody's guess, given the magnitude of the possible consequences of major events, (a national election, the Soviet invasion of Afghanistan, and the Iranian crisis are three such events). The 8.7 percent inflation rate forecasted for 1982 presumes reasonable stability in World affairs and a sustained national effort to control inflation.

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*The Phillips curve is a supposed inverse cause-effect relationship between the rate of the unemployment and the rate of inflation.

The text table compares the presently estimated 1979 and the presently forecasted 1980, 1981 and 1982 annual average rates of consumer price inflation for Anchorage to the rate of increase experienced during the most recent twelve month period.

ANCHORAGE CONSUMER PRICE INFLATION*
(Percent)

	Nov. 1978 to Nov. 1979	Percent Change in Annual Average			
		1979	1980	1981	1982
Apparel and Upkeep	4.3	2.2	7.1	6.4	6.7
Food and Beverages	10.2	10.9	10.0	7.9	7.1
Entertainment	3.7	2.5	5.7	6.2	6.1
Housing	10.2	11.7	8.4	9.1	8.3
Transportation	12.1	11.4	24.6	15.8	12.5
Medical Care	7.8	9.2	9.1	10.4	10.4
Other Goods and Services	7.3	7.0	6.4	6.1	6.1
All Items	9.8	10.6	11.2	9.7	8.7

*As measured by the percent change in the Anchorage Consumer Price Index for all urban workers.

Consumer price indexes for Fairbanks are now being published bi-monthly by the U.S. Bureau of Labor Statistics. Through October the all urban Fairbanks consumer price index had increased at a 12.4 percent annual rate. To date, insufficient data are available for detailed analysis. One can, however, expect similar rates of inflation in Anchorage and Fairbanks.

FINANCIAL SECTOR

Adjusted for inflation, combined time and demand deposits at Alaska's commercial and mutual savings banks declined 7.3 percent between September 30, 1978 and September 30, 1979. Over the same period, real savings and loan deposits declined 2.4 percent. This dismal performance reflects the 3.7 percent decline in real resident personal income estimated by AEIRS to have occurred during that period.

In nominal terms, bank deposits rose $38.8 million or 2.1 percent, and savings and loan deposits $15.4 million or 7.5 percent. Neither of these gains were large enough to offset inflation. When real deposit flows are weak, financial institutions restrict lending. Alaska's banks have done just that. On September 30, 1979 bank loans and discounts stood $23.8

million below the year earlier figure, a nominal decline of 1.9 percent and a real decline of 10.9 percent. The loan-deposit ratio fell from .692 to .665.

The present AEIRS forecast does not expect this pattern to be repeated in 1980. The Alaska economy has bottomed out in our estimation. Real personal income of residents is expected to post a healthy gain in 1980. In addition, State government has shown a willingness to inject deposits into the financial system. (Recent State injections of funds were not reflected in the September 30, 1979 data.) Based on these growth projections, bank deposits are projected to grow by 12.7 percent in 1980 and by 15.2 percent and 12.4 percent in 1981 and 1982, respectively. All of these projected gains are higher than the forecasted rate of increase in Anchorage consumer prices. Because savings and loan associations depend relatively heavily on personal as opposed to business deposits, savings and loan associations will not likely see the recovery until nearly mid 1980. By the end of the year, however, they should be sharing in the recovery. On an annual average basis, deposits at Alaska's savings and loan associations are forecasted to grow by 2.2 percent in 1980, and by 12.4 and 14.1 percent in 1981 and 1982, respectively.

National trends will largely dictate interest rate behavior in Alaska. Data Resources, Incorporated, one of the nation's leading forecasting teams, expects the national economy to slow sufficiently by next summer to lower domestic short term interest rates by about 100 basis points (one percentage point) and domestic long term interest rates by about 30 basis points from fourth quarter peaks. Their forecast for selected interest rates is given in the text table along with the AEIRS forecast of the Seattle conventional mortgage rate. (A proxy for Alaska mortgage rates.)

SELECTED INTEREST RATES
(Percent)

	Calendar Quarters								
	History						Forecast		
	78:3	**78:4**	**79:1**	**79:2**	**79:3**	**79:4**	**80:1**	**80:2**	**80:3**
90-day U.S. Treasury Bills	7.31	8.57	9.38	9.38	9.67	11.95	11.75	10.62	9.37
90-day Euro-dollar Rate	8.70	11.09	10.87	10.63	11.66	15.05	14.34	12.76	11.15
Moody's AAA Corporates	8.75	9.03	9.29	9.39	9.29	10.60	10.45	10.37	10.24
State & Local AAA General Obligations	5.63	5.68	5.81	5.72	5.73	6.49	6.45	6.37	6.27
Conventional Mortgage Rate, Seattle	9.96	10.15	10.57	10.67	11.13	11.87	12.00	12.00	11.96

ACKNOWLEDGEMENT: Forecasts of all but the Seattle Mortgage rate were obtained from the December 1979 **Data Resources Review**.

The AEIRS forecast of mortgage rates shows these rates reaching 12.0 percent and staying there for most of the year, even though other long term interest rates decline by next summer. The persistence in mortgage rates is expected because lending institutions have been paying record high rates for lendable funds through the issuance of instruments such as jumbo negotiable certificates of deposit and six month money market certificates. Financial institutions will be reluctant to lower their lending rates until a shift occurs away from such high interest rate sources of funds.

III. A BOOM IN 1982?

There are a number of large multi-year construction projects being planned for Alaska. Three in particular are the Northwest Alaska gas pipeline project, Alpetco, and the Pacific Alaska LNG plant. While one or more of these projects may be postponed or scrapped, all are sufficiently far along that a look at their short term economic impact is in order. The following table gives direct construction employment as it might be on these projects if they all proceed on essentially their present schedules. While the schedules used here may be optimistic, and while the direct employment numbers are no more than approximations, both are roughly consistent with what has been announced by the respective project managers.

DIRECT CONSTRUCTION EMPLOYMENT
THREE MAJOR PROJECTS

Calendar Quarters

	80:1	80:2	80:3	80:4	81:1	81:2	81:3	81:4	82:1	82:2	82:3	82:4
Casline	0	0	0	0	0	50	100	100	1,000	4,000	7,000	5,500
Pac. Ak. LNG	0	0	50	50	100	550	1,200	750	300	800	1,500	750
Alpetco	0	75	150	300	600	1,300	1,800	1,250	1,000	1,650	2,300	2,250
Total	0	75	200	350	700	1,900	3,100	2,100	2,300	6,450	10,800	8,500

The critical feature brought out in the text table is the fact that all three projects may be employing their peak construction workforces in the summer of 1982. This raises the possibility of a construction boom in Alaska in 1982. When combined with what already looks to be a relatively strong 1982 construction season (produced by lower inventories of housing and commercial space, lower interest rates, and growth in bottomfish and tourism, to say nothing of 1982 being the first year of a two year state capital budget), strains of near oil pipeline magnitude could be placed on the Alaska economy.

The AEIRS econometric model was used to simulate the induced effects of the added stream of construction workers shown in the above text table. The following table entitled "Boom vs Control" summarizes the results. The additional 12,180 jobs generated in 1982 are made up of 7,010 direct construction jobs and 5,170 induced jobs in other sectors. During the third quarter of 1982, construction employment peaks at almost 33,000 jobs, a level last seen in 1976 when summer construction employment peaked at 38,454 jobs. In this sense the combined effect of the three planned construction projects is to produce a boom of near oil pipeline magnitude.

To a certain extent, the additional 2.4 percentage points of inflation shown in the text table for 1982 is an educated guess. Econometric models can only crudely capture the inflationary pressures generated by such a surge in economic activity. Between 1973 and 1976, the period of TAPS construction in Alaska, the Anchorage consumer price index rose an average of 2.2 percentage points more per year than the overall U.S. consumer price index. Without

BOOM VS. CONTROL

	Control Forecast	Boom in 1982	Diff.
1980			
Personal Income of Residents 1/	5.544	5.557	0.013
Nonagricultural Employment	168,181	168,599	418
Inflation Rate 2/	11.2	11.2	---
1981			
Personal Income of Residents 1/	6.356	6.586	0.230
Nonagricultural Employment	175,279	180,610	5,331
Inflation Rate 2/	9.7	9.9	0.2
1982			
Personal Income of Residents 1/	7.395	8.026	0.631
Nonagricultural Employment	184,254	196,434	12,180
Inflation Rate 2/	8.7	11.1	2.4

1/ Billions of dollars.

2/ Percent. As measured by the percent change in the Anchorage consumer price index for all urban workers.

TAPS, the Anchorage index probably would have maintained its historical pattern of increasing slower than the U.S. average. Similar differential price pressures can be expected in 1982 if the gasline, Alpetco, and the Pacific Alaska facility proceed on schedule.

IV. SOME IMPORTANT UNCERTAINTIES

At no time since this **REPORT** was first published has there been more uncertainty surrounding the forecast. National and World events of potentially enormous consequence have precipated major changes in energy supplies and in commodity prices. These in turn have prompted political and economic responses whose effects, quite frankly, cannot be captured by any model or forecasting technique developed to date, by anybody.

The revolution in Iran and the subsequent taking of American hostages has dramatized the sensitivity of Western political and economic conditions to events in the Middle East. The short term effects of the Iranian crisis have been to drive crude oil prices to levels two to three times the levels of just one year ago, and to generate a wholly unexpected increase in gold prices (approaching $700 per ounce in New York at this writing).

As long as the Iranian crisis remains unsettled, indeed, as long as the Western World perceives a serious possibility of further disruptions in the Middle East, commodity prices in general can be expected to remain high, with crude oil prices and gold prices particularly sensitive to such uncertainty.

Alaska is not exempt from the fallout from World events. Concern in Washington over potential political instability in the Middle East and elsewhere will have an important impact on such legislation as the D2 settlement and the windfall oil profits tax. The major shakeup in World oil markets which has occurred and which continues to unfold has already enhanced the profitability of one major Alaska project (Alpetco) and could play a role in deciding the fate of other projects such as the Northwest gasline. The incredible rise in metals prices (particulary gold prices) seen in the past few months has set the stage for a surge in Alaska mineral exploration that would have been unimaginable a year ago. Finally, in terms of potential immediate impact on Alaska nothing surpasses the coming legislative session in Juneau. There is simply no way to tell just how big a spending spree we will go on. One hopes that a reasonable spending ceiling will be imposed, but that remains to be seen.

Yet another uncertainty facing Alaskans is a possible sharp decline in fresh salmon prices this year. Because the Japanese appear to be carrying heavy inventories of salmon and because the dollar has recently appreciated against the Japanese yen, and, finally, because another record run of salmon in parts of the State is anticipated, salmon prices could reach very low levels in 1980. While steps are being taken to develop alternative markets for Alaska salmon, only modest progress should be expected. Of course, if salmon prices drop enough, a market will be found. The problem is to find a market for salmon priced at or near 1979 levels.

Given Alaska's role as a major storehouse of crude oil and minerals, it would seem that most of the risks are on the upside; that if the forecast presented here errs it does so by being too conservative. That is a dangerous attitude. The U.S. Congress is not likely to allow Alaskans to get rich at the expense of the rest of the country. While the outlook on balance is excellent, the potential for a flexing of federal regulatory muscle is very real. Alaskans should never forget that for all intents and purposes we will prosper only at the pleasure of the rest of the country.

We believe that the forecast presented in this **REPORT** is a responsible look ahead at how these uncertainties will, on balance, play themselves out. But we must add that as only one possibility among many, it is given a lower probability of unfolding than any of its predecessors. Particulary in 1981 and 1982 there is at least a fifty percent chance that the truth will ultimately diverge quite sharply form the version laid out here. Results of the special simulation of Alpecto, Pacific Alaska LNG, and gasline construction can be viewed as an upper limit to short term growth possibilities. A realistic lower limit cannot be defined. It depends too heavily on the shape of world events and on the responses to these events both in Washington and in Juneau.

APPENDIX

Historical employment and income data published in the following tables have been revised in accordance with revisions released by the Alaska Department of Labor, and by the U.S. Department of Commerce, Bureau of Economic Analysis.

TABLE I
STATE OF ALASKA
POPULATION, LABOR FORCE, & EMPLOYMENT

POPULATION AND LABOR FORCE (THOUSANDS)

	1976:1	1976:2	1976:3	1976:4	ANNUAL AVG. 1976	1977:1	1977:2	1977:3	1977:4	ANNUAL AVG. 1977
POPULATION (TRENDED)	394.0	400.0	408.3	409.5	402.9	410.7	411.8	413.0	410.5	411.5
LABOR FORCE (CPS BASIS)	154.2	171.7	181.9	164.3	168.0	164.0	180.2	181.7	174.0	175.0
EMPLOYMENT (CPS BASIS)	138.6	157.2	169.7	150.6	154.0	146.9	164.1	168.4	156.6	159.0
UNEMPLOYMENT (CPS BASIS)	15.6	14.5	12.2	13.7	14.0	17.1	16.1	13.4	17.4	16.0
UNEMPLOYMENT RATE (PERCENT, CPS BASIS)	10.1	8.4	6.7	8.3	8.4	10.4	8.9	7.4	10.0	9.2
NONAGRICULTURAL WAGE & SALARY EMPLOYMENT										
MINING	3,651	3,744	4,300	4,163	3,965	4,717	5,079	5,231	4,807	4,959
CONTRACT CONSTRUCTION	23,156	32,760	38,454	26,562	30,233	18,953	22,583	21,310	15,336	19,546
MANUFACTURING	7,402	10,500	14,022	9,400	10,331	8,035	11,487	14,579	9,480	10,895
LOGGING & SAWMILLS	1,107	2,106	2,451	2,117	1,945	1,643	2,575	2,444	1,663	2,081
PAPER & PULP PRODUCTS	1,199	1,188	1,280	1,126	1,198	1,176	1,427	1,238	1,150	1,248
MISC FOOD & KINDRED PRODUCTS	2,927	4,667	7,521	3,752	4,717	2,972	4,974	8,133	4,154	5,058
OTHER MANUFACTURING	2,169	2,539	2,770	2,405	2,471	2,244	2,511	2,764	2,513	2,508
TRANS, COMM, & PUBLIC UTILS	15,164	15,846	16,840	14,967	15,704	14,280	14,706	18,194	16,934	16,029
TRUCKING	3,010	3,004	3,217	3,034	3,066	2,583	2,441	2,630	2,118	2,443
WATER TRANSPORTATION	1,136	1,358	1,535	1,293	1,331	1,030	1,180	1,832	1,254	1,324
AIR TRANSPORTATION	4,402	4,847	5,009	4,314	4,643	4,079	4,449	4,597	4,365	4,373
OTHER TRANSPORTATION	2,131	1,722	2,198	1,867	1,980	1,822	2,005	3,883	3,881	2,898
COMMUNICATIONS	3,392	3,722	3,612	3,210	3,484	3,536	3,381	3,953	3,958	3,707
PUBLIC UTILITIES	1,093	1,193	1,269	1,249	1,201	1,230	1,250	1,299	1,358	1,284
WHOLESALE TRADE	6,067	6,248	6,239	5,837	6,098	5,671	5,982	6,177	5,771	5,900
RETAIL TRADE	19,961	22,224	22,923	20,755	21,466	20,601	22,698	23,470	23,442	22,553
FINANCE, INSURANCE, & REAL EST.	6,490	6,970	7,758	7,191	7,102	7,281	7,601	7,948	8,267	7,774
SERVICES	26,436	28,556	28,797	26,742	27,633	26,740	28,185	26,478	26,520	26,981
GOVERNMENT	48,718	50,764	49,644	49,554	49,670	50,100	50,937	49,927	51,993	50,739
FEDERAL	17,718	17,929	18,371	17,758	17,944	17,390	17,701	18,128	17,717	17,734
STATE	13,169	14,354	15,215	13,754	14,123	13,462	13,989	13,933	14,056	13,860
LOCAL	17,831	18,481	16,058	18,042	17,603	19,248	19,247	17,866	20,220	19,145
MISCELLANEOUS EMPLOYMENT	1,096	1,310	2,056	728	1,298	699	706	863	494	691
TOTAL	158,141	178,922	191,033	165,899	173,499	157,077	169,964	174,177	163,044	166,066

FORECAST PERIODS ARE: POPULATION (78:4 TO 82:4)
LABOR FORCE (79:1 TO 82:4)
NONAG EMPLOYMENT (79:3 TO 82:4)

NOTE: PAPER & PULP EMPLOYMENT FOR 1978:4, 1979:1 IS ESTIMATED.

TABLE I
STATE OF ALASKA
POPULATION, LABOR FORCE, & EMPLOYMENT

POPULATION AND LABOR FORCE (THOUSANDS)

	1978:1	1978:2	1978:3	1978:4	ANNUAL AVG. 1978	1979:1	1979:2	1979:3	1979:4	ANNUAL AVG. 1979
POPULATION (TRENDED)	408.0	405.5	403.0	405.4	405.5	406.6	408.0	409.6	412.3	409.1
LABOR FORCE (CPS BASIS)	170.4	184.1	190.3	175.2	180.0	172.3	182.1	186.5	179.9	180.2
EMPLOYMENT (CPS BASIS)	149.6	162.3	172.0	156.1	160.0	147.7	162.9	169.5	160.9	160.3
UNEMPLOYMENT (CPS BASIS)	20.8	21.8	18.3	19.1	20.0	19.7	19.2	16.9	19.0	18.7
UNEMPLOYMENT RATE (PERCENT, CPS BASIS)	12.2	11.8	9.6	10.9	11.1	11.9	10.5	9.1	10.6	10.5

NONAGRICULTURAL WAGE & SALARY EMPLOYMENT

MINING	5,380	5,782	5,698	5,390	5,563	5,642	5,903	6,044	5,527	5,779
CONTRACT CONSTRUCTION	10,226	12,572	14,817	11,345	12,240	7,461	9,846	12,440	9,799	9,886
MANUFACTURING	8,325	11,922	16,091	9,587	11,481	7,800	13,139	16,107	10,047	11,773
LOGGING & SAWMILLS	903	2,024	2,151	1,656	1,684	971	2,034	2,106	1,632	1,686
PAPER & PULP PRODUCTS	1,168	1,197	1,190	750	1,076	1,066	1,248	1,318	1,198	1,208
MISC FOOD & KINDRED PRODUCTS	3,681	5,862	9,584	4,350	5,869	3,317	6,840	9,770	4,587	6,129
OTHER MANUFACTURING	2,573	2,839	3,166	2,831	2,852	2,446	3,017	2,912	2,629	2,751
TRANS, COMM, & PUBLIC UTILS	15,507	16,542	17,521	15,945	16,379	15,609	16,726	16,957	16,276	16,392
TRUCKING	2,050	2,147	2,257	1,879	2,083	1,813	1,761	1,918	2,046	1,885
WATER TRANSPORTATION	830	1,376	1,359	1,109	1,169	916	1,292	1,307	1,122	1,159
AIR TRANSPORTATION	4,228	4,431	4,871	4,565	4,524	4,475	5,041	5,015	4,564	4,774
OTHER TRANSPORTATION	3,227	3,067	3,375	2,913	3,146	2,812	2,987	3,066	3,126	2,998
COMMUNICATIONS	3,905	4,028	4,163	4,112	4,052	4,214	4,224	4,225	4,033	4,174
PUBLIC UTILITIES	1,267	1,493	1,496	1,367	1,406	1,379	1,421	1,426	1,386	1,403
WHOLESALE TRADE	5,531	5,743	5,988	5,621	5,721	5,289	5,679	5,804	5,787	5,640
RETAIL TRADE	21,638	23,197	24,161	23,431	23,107	22,879	24,098	24,217	23,338	23,633
FINANCE, INSURANCE, & REAL EST.	8,442	7,966	8,341	8,163	8,228	8,093	8,208	8,598	8,407	8,326
SERVICES	25,805	27,778	29,540	27,299	27,606	27,558	28,658	28,705	27,296	28,054
GOVERNMENT	51,761	53,061	49,427	55,085	52,334	54,886	55,814	51,408	55,037	54,286
FEDERAL	17,501	18,055	18,720	18,396	18,168	17,516	17,816	18,103	17,900	17,834
STATE	13,842	14,275	14,440	14,829	14,347	14,652	15,041	15,022	15,057	14,943
LOCAL	20,418	20,731	16,267	21,860	19,819	22,718	22,957	18,283	22,082	21,510
MISCELLANEOUS EMPLOYMENT	515	493	967	159	534	478	920	1,345	770	878
TOTAL	153,130	165,056	172,551	162,025	163,191	155,695	168,991	171,625	162,283	164,648

FORECAST PERIODS ARE: POPULATION (78:4 TO 82:4)
LABOR FORCE (79:1 TO 82:4)
NONAG EMPLOYMENT (79:3 TO 82:4)

NOTE: PAPER & PULP EMPLOYMENT FOR 1978:4, 1979:1 IS ESTIMATED.

TABLE I
STATE OF ALASKA
POPULATION, LABOR FORCE, & EMPLOYMENT

POPULATION AND LABOR FORCE (THOUSANDS)

	1980:1	1980:2	1980:3	1980:4	ANNUAL AVG. 1980	1981:1	1981:2	1981:3	1981:4	ANNUAL AVG. 1981
POPULATION (TRENDED)	414.8	417.5	419.9	423.0	418.8	425.3	428.1	430.6	433.8	429.5
LABOR FORCE (CPS BASIS)	177.4	188.3	194.2	189.2	187.3	189.5	200.3	206.6	201.4	199.4
EMPLOYMENT (CPS BASIS)	156.7	167.9	176.5	168.8	167.5	166.8	178.2	187.3	179.2	177.9
UNEMPLOYMENT (CPS BASIS)	20.8	20.3	17.7	20.4	19.8	22.7	22.1	19.3	22.2	21.6
UNEMPLOYMENT RATE (PERCENT, CPS BASIS)	11.7	10.8	9.1	10.8	10.6	12.0	11.0	9.3	11.0	10.8
NONAGRICULTURAL WAGE & SALARY EMPLOYMENT										
MINING	6,048	6,738	7,598	7,291	6,919	8,526	9,623	10,461	10,338	9,737
CONTRACT CONSTRUCTION	7,634	11,695	14,382	10,727	11,110	9,086	11,783	14,630	11,565	11,766
MANUFACTURING	8,686	12,368	16,524	10,253	11,958	8,846	12,464	16,701	10,346	12,089
LOGGING & SAWMILLS	1,101	1,851	2,061	1,603	1,654	1,079	1,849	2,042	1,554	1,631
PAPER & PULP PRODUCTS	1,255	1,325	1,307	1,154	1,260	1,223	1,329	1,351	1,223	1,281
MISC FOOD & KINDRED PRODUCTS	3,849	6,299	10,167	4,762	6,269	4,050	6,379	10,297	4,819	6,387
OTHER MANUFACTURING	2,481	2,893	2,989	2,734	2,774	2,494	2,907	3,010	2,750	2,790
TRANS, COMM, & PUBLIC UTILS	15,934	17,065	17,902	17,081	16,996	16,363	17,444	18,261	17,435	17,376
TRUCKING	2,020	2,142	2,221	2,213	2,149	2,231	2,261	2,291	2,303	2,271
WATER TRANSPORTATION	899	1,164	1,473	1,186	1,181	940	1,213	1,527	1,224	1,226
AIR TRANSPORTATION	4,383	4,776	5,093	4,700	4,738	4,533	4,939	5,242	4,820	4,883
OTHER TRANSPORTATION	3,194	3,326	3,358	3,475	3,338	3,263	3,378	3,418	3,533	3,398
COMMUNICATIONS	4,066	4,217	4,272	4,075	4,158	3,986	4,175	4,262	4,088	4,128
PUBLIC UTILITIES	1,371	1,440	1,485	1,433	1,432	1,411	1,478	1,521	1,466	1,469
WHOLESALE TRADE	5,738	5,776	5,869	5,848	5,808	5,782	5,814	5,910	5,893	5,850
RETAIL TRADE	21,826	23,533	24,546	23,865	23,442	22,326	24,109	25,184	24,515	24,033
FINANCE, INSURANCE, & REAL EST.	8,311	8,425	8,859	8,711	8,577	8,663	8,825	9,310	9,173	8,992
SERVICES	27,174	28,373	28,864	27,123	27,884	27,366	29,019	29,335	27,440	28,290
GOVERNMENT	54,946	55,642	51,985	55,765	54,584	56,348	57,507	54,185	56,922	56,240
FEDERAL	17,897	18,196	18,294	18,293	18,170	18,085	18,385	18,484	18,484	18,360
STATE	14,853	15,115	15,192	15,400	15,140	15,284	15,666	16,204	15,847	15,751
LOCAL	22,195	22,331	18,498	22,071	21,274	22,979	23,456	19,496	22,591	22,130
MISCELLANEOUS EMPLOYMENT	577	923	1,348	771	905	577	923	1,348	771	905
TOTAL	156,875	170,538	177,877	167,436	168,181	163,883	177,511	185,323	174,398	175,279

FORECAST PERIODS ARE: POPULATION (78:4 TO 82:4)
LABOR FORCE (79:1 TO 82:4)
NONAG EMPLOYMENT (79:3 TO 82:4)

NOTE: PAPER & PULP EMPLOYMENT FOR 1978:4, 1979:1 IS ESTIMATED.

TABLE I
STATE OF ALASKA
POPULATION, LABOR FORCE, & EMPLOYMENT

POPULATION AND LABOR FORCE (THOUSANDS)

	1982:1	1982:2	1982:3	1982:4	ANNUAL AVG. 1982
POPULATION (TRENDED)	436.3	439.4	442.0	445.1	440.7
LABOR FORCE (CPS BASIS)	201.4	214.0	221.1	214.7	212.8
EMPLOYMENT (CPS BASIS)	176.8	190.0	200.2	190.6	189.4
UNEMPLOYMENT (CPS BASIS)	24.6	24.0	20.9	24.1	23.4
UNEMPLOYMENT RATE (PERCENT, CPS BASIS)	12.2	11.2	9.4	11.2	11.0
NONAGRICULTURAL WAGE & SALARY EMPLOYMENT					
MINING	11,830	12,909	13,463	12,704	12,726
CONTRACT CONSTRUCTION	9,679	14,296	18,219	13,124	13,829
MANUFACTURING	9,066	12,822	17,132	10,657	12,419
LOGGING & SAWMILLS	1,125	1,960	2,157	1,659	1,725
PAPER & PULP PRODUCTS	1,316	1,440	1,462	1,314	1,383
MISC FOOD & KINDRED PRODUCTS	4,112	6,475	10,454	4,888	6,482
OTHER MANUFACTURING	2,513	2,946	3,059	2,796	2,829
TRANS, COMM, & PUBLIC UTILS	16,676	17,837	18,723	17,924	17,790
TRUCKING	2,262	2,290	2,318	2,329	2,300
WATER TRANSPORTATION	968	1,252	1,583	1,275	1,270
AIR TRANSPORTATION	4,645	5,079	5,408	4,994	5,031
OTHER TRANSPORTATION	3,341	3,477	3,525	3,651	3,498
COMMUNICATIONS	4,019	4,227	4,332	4,171	4,187
PUBLIC UTILITIES	1,442	1,511	1,557	1,503	1,503
WHOLESALE TRADE	5,835	5,872	5,968	5,958	5,908
RETAIL TRADE	22,982	24,876	26,036	25,406	24,825
FINANCE, INSURANCE, & REAL EST.	9,136	9,323	9,853	9,724	9,509
SERVICES	27,670	29,504	29,992	28,252	28,854
GOVERNMENT	57,439	58,697	55,385	58,382	57,476
FEDERAL	18,085	18,385	18,484	18,484	18,360
STATE	15,590	15,980	16,529	16,164	16,066
LOCAL	23,763	24,333	20,372	23,733	23,050
MISCELLANEOUS EMPLOYMENT	585	935	1,366	781	917
TOTAL	170,896	187,071	196,137	182,911	184,254

FORECAST PERIODS ARE: POPULATION (78:4 TO 82:4)
LABOR FORCE (79:1 TO 82:4)
NONAG EMPLOYMENT (79:3 TO 82:4)

NOTE: PAPER & PULP EMPLOYMENT FOR 1978:4, 1979:1 IS ESTIMATED.

TABLE II
STATE OF ALASKA
INCOME, PRICES AND WAGES

INCOME(BILLIONS OF $,SEASONALLY ADJUSTED,ANNUAL RATE)

	1976:1	1976:2	1976:3	1976:4	ANNUAL AVG. 1976	1977:1	1977:2	1977:3	1977:4	ANNUAL AVG. 1977
WAGES & SALARIES	4.081	4.318	4.390	4.344	4.283	4.189	3.960	3.590	3.636	3.844
PLUS: OTHER LABOR INCOME	0.220	0.233	0.253	0.271	0.244	0.284	0.284	0.277	0.296	0.285
PLUS: PROPRIETORS' INCOME	0.180	0.190	0.200	0.224	0.199	0.236	0.237	0.230	0.240	0.236
PLUS: PROPERTY INCOME	0.283	0.294	0.301	0.306	0.296	0.310	0.314	0.314	0.313	0.313
PLUS: TRANSFER PAYMENTS	0.300	0.284	0.289	0.293	0.291	0.323	0.337	0.360	0.346	0.342
PLUS: RESIDENCE ADJUSTMENT	-0.867	-0.939	-0.942	-0.910	-0.915	-0.605	-0.521	-0.392	-0.372	-0.473
LESS: EMPLOYEE CONTRIBUTIONS SOC INS	0.188	0.196	0.208	0.224	0.204	0.238	0.240	0.223	0.228	0.232
EQUALS:PERSONAL INCOME,RESIDENCE BASIS	4.008	4.186	4.283	4.304	4.195	4.499	4.372	4.156	4.231	4.314

CONSUMER PRICE INDICES-ANCHORAGE (1967=1.000)

APPAREL AND UPKEEP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FOOD AND BEVERAGES	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENTERTAINMENT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HOUSING	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRANSPORTATION	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MEDICAL CARE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OTHER GOODS & SVCS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALL ITEMS	1.597	1.628	1.658	1.682	1.641	1.705	1.742	1.774	1.782	1.751

AVERAGE HOURLY EARNINGS (DOLLARS,SEASONALLY ADJUSTED)

MINING	12.99	13.42	13.35	14.00	13.44	15.50	15.01	14.65	15.23	15.10
CONTRACT CONSTRUCTION	16.21	16.94	18.23	19.10	17.62	20.16	19.09	18.26	19.44	19.24
MANUFACTURING	7.82	7.68	7.89	8.03	7.85	8.32	8.66	9.35	10.56	9.22
WHOLESALE TRADE	8.12	8.70	9.00	8.33	8.54	8.62	8.83	8.91	8.36	8.68
RETAIL TRADE*	6.65	6.27	6.59	6.67	6.55	6.94	7.17	7.40	7.37	7.22

*EXCEPT EATING & DRINKING PLACES
NA=NOT AVAILABLE
NC=NOT CALCULATED
INCOME DATA ARE PRELIMINARY FOR 1979:1 TO 1979:2.
WAGES & SALARIES INCLUDES MILITARY.
CPI'S ARE FOR ALL URBAN WORKERS

FORECAST PERIODS ARE: INCOME (79:3 TO 82:4)
PRICES (79:4 TO 82:4)
EARNINGS (79:3 TO 82:4)

TABLE II
STATE OF ALASKA
INCOME, PRICES, AND WAGES

INCOME(BILLIONS OF $, SEASONALLY ADJUSTED ANNUAL RATE)

	1978:1	1978:2	1978:3	1978:4	ANNUAL AVG. 1978	1979:1	1979:2	1979:3	1979:4	ANNUAL AVG. 1979
WAGES & SALARIES	3.670	3.576	3.605	3.653	3.626	3.688	3.684	3.857	4.055	3.821
PLUS: OTHER LABOR INCOME	0.315	0.312	0.322	0.329	0.320	0.332	0.343	0.341	0.346	0.341
PLUS: PROPRIETORS' INCOME	0.248	0.253	0.263	0.277	0.260	0.271	0.272	0.225	0.231	0.250
PLUS: PROPERTY INCOME	0.319	0.326	0.338	0.351	0.334	0.367	0.382	0.404	0.423	0.394
PLUS: TRANSFER PAYMENTS	0.345	0.346	0.379	0.363	0.358	0.344	0.350	0.372	0.387	0.363
PLUS: RESIDENCE ADJUSTMENT	-0.274	-0.255	-0.253	-0.254	-0.259	-0.204	-0.206	-0.227	-0.242	-0.220
LESS: EMPLOYEE CONTRIBUTIONS SOC INS	0.236	0.222	0.219	0.216	0.223	0.229	0.229	0.267	0.285	0.253
EQUALS: PERSONAL INCOME, RESIDENCE BASIS	4.385	4.336	4.436	4.502	4.415	4.568	4.595	4.705	4.914	4.696

CONSUMER PRICE INDICES-ANCHORAGE (1967=1.000)

APPAREL AND UPKEEP	1.546	1.581	1.594	1.612	1.583	1.578	1.579	1.642	1.674	1.618
FOOD AND BEVERAGES	2.115	2.211	2.248	2.294	2.217	2.385	2.425	2.485	2.539	2.458
ENTERTAINMENT	1.838	1.874	1.885	1.902	1.874	1.903	1.896	1.927	1.956	1.920
HOUSING	1.762	1.791	1.882	1.931	1.841	1.982	2.027	2.093	2.124	2.056
TRANSPORTATION	1.687	1.750	1.792	1.822	1.763	1.844	1.906	1.995	2.111	1.964
MEDICAL CARE	2.237	2.248	2.310	2.352	2.287	2.442	2.491	2.499	2.561	2.498
OTHER GOODS & SVCS	1.758	1.790	1.825	1.855	1.807	1.884	1.917	1.952	1.981	1.934
ALL ITEMS	1.800	1.843	1.909	1.950	1.875	1.996	2.037	2.103	2.160	2.074

AVERAGE HOURLY EARNINGS (DOLLARS, SEASONALLY ADJUSTED)

MINING	15.15	14.73	14.60	15.67	15.05	16.68	17.39	17.38	16.61	17.02
CONTRACT CONSTRUCTION	18.28	18.12	17.84	18.66	18.22	18.67	18.73	19.38	18.91	18.92
MANUFACTURING	9.11	8.94	8.60	8.80	8.86	9.19	9.45	10.86	11.66	10.29
WHOLESALE TRADE	8.38	8.68	8.98	9.06	8.78	9.28	9.57	9.77	9.95	9.64
RETAIL TRADE*	7.05	7.36	7.05	7.56	7.26	7.39	7.51	8.68	9.06	8.16

*EXCEPT EATING & DRINKING PLACES
NA=NOT AVAILABLE
NC=NOT CALCULATED
INCOME DATA ARE PRELIMINARY FOR 1979:1 TO 1979:2.
WAGES & SALARIES INCLUDES MILITARY.
CPI'S ARE FOR ALL URBAN WORKERS

FORECAST PERIODS ARE: INCOME (79:3 TO 82:4)
PRICES (79:4 TO 82:4)
EARNINGS (79:3 TO 82:4)

TABLE II
STATE OF ALASKA
INCOME, PRICES, AND WAGES

INCOME (BILLIONS OF $, SEASONALLY ADJUSTED, ANNUAL RATE)

	1980:1	1980:2	1980:3	1980:4	ANNUAL AVG. 1980	1981:1	1981:2	1981:3	1981:4	ANNUAL AVG. 1981
WAGES & SALARIES	4.338	4.567	4.710	4.809	4.606	5.101	5.240	5.419	5.500	5.315
PLUS: OTHER LABOR INCOME	0.356	0.369	0.381	0.392	0.374	0.406	0.419	0.433	0.444	0.426
PLUS: PROPRIETORS' INCOME	0.238	0.244	0.252	0.259	0.248	0.267	0.273	0.281	0.289	0.277
PLUS: PROPERTY INCOME	0.481	0.499	0.515	0.531	0.506	0.546	0.563	0.581	0.603	0.573
PLUS: TRANSFER PAYMENTS	0.369	0.385	0.434	0.456	0.411	0.446	0.462	0.520	0.546	0.494
PLUS: RESIDENCE ADJUSTMENT	-0.254	-0.269	-0.275	-0.291	-0.272	-0.306	-0.314	-0.315	-0.329	-0.316
LESS: EMPLOYEE CONTRIBUTIONS SOC INS	0.302	0.335	0.336	0.343	0.329	0.386	0.416	0.419	0.430	0.413
EQUALS: PERSONAL INCOME, RESIDENCE BASIS	5.225	5.459	5.681	5.812	5.544	6.073	6.227	6.499	6.623	6.356

CONSUMER PRICE INDICES-ANCHORAGE (1967=1.000)

APPAREL AND UPKEEP	1.702	1.727	1.750	1.772	1.738	1.802	1.833	1.864	1.896	1.849
FOOD AND BEVERAGES	2.607	2.674	2.737	2.795	2.703	2.845	2.892	2.939	2.987	2.916
ENTERTAINMENT	1.985	2.015	2.045	2.076	2.030	2.107	2.139	2.171	2.203	2.155
HOUSING	2.156	2.204	2.252	2.302	2.228	2.352	2.404	2.457	2.511	2.431
TRANSPORTATION	2.257	2.414	2.519	2.601	2.448	2.695	2.793	2.884	2.971	2.836
MEDICAL CARE	2.626	2.691	2.758	2.827	2.726	2.898	2.971	3.045	3.121	3.009
OTHER GOODS & SVCS	2.011	2.041	2.072	2.103	2.057	2.134	2.166	2.199	2.232	2.183
ALL ITEMS	2.216	2.280	2.337	2.390	2.306	2.446	2.501	2.557	2.613	2.529

AVERAGE HOURLY EARNINGS (DOLLARS, SEASONALLY ADJUSTED)

MINING	16.75	18.59	19.56	17.59	18.12	16.74	19.54	21.69	18.49	19.12
CONTRACT CONSTRUCTION	19.00	19.93	19.87	19.81	19.65	20.98	21.86	21.74	21.66	21.56
MANUFACTURING	12.00	12.33	12.66	13.22	12.55	13.32	13.68	14.02	14.63	13.91
WHOLESALE TRADE	10.15	10.65	11.18	11.34	10.83	11.47	11.87	12.20	12.19	11.93
RETAIL TRADE*	9.39	9.72	10.05	10.34	9.88	10.65	10.94	11.27	11.57	11.11

*EXCEPT EATING & DRINKING PLACES
NA=NOT AVAILABLE
NC=NOT CALCULATED
INCOME DATA ARE PRELIMINARY FOR 1979:1 TO 1979:2.
WAGES & SALARIES INCLUDES MILITARY.
CPI'S ARE FOR ALL URBAN WORKERS

FORECAST PERIODS ARE: INCOME (79:3 TO 82:4)
PRICES (79:4 TO 82:4)
EARNINGS (79:3 TO 82:4)

TABLE II
STATE OF ALASKA
INCOME, PRICES, AND WAGES

INCOME (BILLIONS OF $, SEASONALLY ADJUSTED, ANNUAL RATE)

		1982:1	1982:2	1982:3	1982:4	ANNUAL AVG. 1982
	WAGES & SALARIES	5.863	6.131	6.386	6.477	6.214
PLUS:	OTHER LABOR INCOME	0.460	0.478	0.497	0.511	0.487
PLUS:	PROPRIETORS' INCOME	0.298	0.304	0.314	0.323	0.310
PLUS:	PROPERTY INCOME	0.627	0.653	0.680	0.709	0.667
PLUS:	TRANSFER PAYMENTS	0.509	0.527	0.593	0.622	0.563
PLUS:	RESIDENCE ADJUSTMENT	-0.349	-0.360	-0.362	-0.374	-0.361
LESS:	EMPLOYEE CONTRIBUTIONS SOC INS	0.445	0.488	0.496	0.511	0.485
EQUALS:	PERSONAL INCOME, RESIDENCE BASIS	6.963	7.246	7.611	7.758	7.395

CONSUMER PRICE INDICES-ANCHORAGE (1967=1.000)

APPAREL AND UPKEEP	1.926	1.956	1.987	2.019	1.972
FOOD AND BEVERAGES	3.042	3.097	3.150	3.203	3.123
ENTERTAINMENT	2.236	2.270	2.304	2.339	2.287
HOUSING	2.559	2.607	2.657	2.707	2.633
TRANSPORTATION	3.060	3.148	3.234	3.320	3.190
MEDICAL CARE	3.199	3.279	3.361	3.445	3.321
OTHER GOODS & SVCS	2.265	2.299	2.334	2.369	2.317
ALL ITEMS	2.667	2.721	2.776	2.831	2.749

AVERAGE HOURLY EARNINGS (DOLLARS, SEASONALLY ADJUSTED)

MINING	16.50	20.42	23.89	19.31	20.03
CONTRACT CONSTRUCTION	22.87	23.78	23.60	23.46	23.43
MANUFACTURING	14.70	15.07	15.42	16.07	15.32
WHOLESALE TRADE	12.18	12.45	12.68	12.59	12.47
RETAIL TRADE*	11.87	12.15	12.47	12.77	12.32

*EXCEPT EATING & DRINKING PLACES
NA=NOT AVAILABLE
NC=NOT CALCULATED
INCOME DATA ARE PRELIMINARY FOR 1979:1 TO 1979:2.
WAGES & SALARIES INCLUDES MILITARY.
CPI'S ARE FOR ALL URBAN WORKERS

FORECAST PERIODS ARE: INCOME (79:3 TO 82:4)
PRICES (79:4 TO 82:4)
EARNINGS (79:3 TO 82:4)

TABLE III
STATE OF ALASKA
SELECTED FINANCIAL BALANCES & FLOWS
(MILLIONS OF DOLLARS)

COMMERCIAL & MUTUAL SAVINGS BANKS

	1976:1	1976:2	1976:3	1976:4	ANNUAL AVG. 1976	1977:1	1977:2	1977:3	1977:4	ANNUAL AVG. 1977
CASH & DUE FROM BANKS	229.2	219.2	270.5	239.2	239.5	200.1	199.2	204.5	215.6	204.9
SECURITIES	413.5	485.1	510.7	482.6	473.0	466.7	466.6	509.4	478.9	480.4
LOANS & DISCOUNTS	792.6	855.6	913.3	957.4	879.7	981.9	1,051.5	1,122.3	1,148.9	1,076.2
OTHER ASSETS	79.9	81.4	88.6	92.3	85.5	101.3	119.9	120.1	120.4	115.4
TOTAL ASSETS	1,515.1	1,641.3	1,783.2	1,771.5	1,677.8	1,750.1	1,837.3	1,956.3	1,963.8	1,876.9
DEMAND DEPOSITS	630.4	727.9	763.0	682.9	701.1	651.2	746.7	774.7	731.4	726.0
TIME DEPOSITS	708.3	709.9	817.4	848.8	771.1	847.9	821.3	901.9	953.0	881.0
OTHER LIABILITIES & CAPITAL	176.4	203.5	202.9	239.8	205.7	251.0	269.3	279.8	279.5	269.9

SAVINGS & LOAN ASSOCIATIONS

DEPOSITS,BEGINNING OF QRTR	158.9	168.3	178.7	188.0	173.5	190.7	196.9	217.8	218.7	206.0
NEW SAVINGS RECEIVED	54.3	54.1	54.1	46.9	52.3	55.3	61.8	71.9	50.5	59.9
WITHDRAWALS	46.4	47.9	48.9	46.5	47.4	51.1	53.3	56.9	56.7	54.5
CHANGE IN MORTGAGE PORTFOLIOS	1.6	11.9	11.0	3.5	7.0	3.5	10.8	11.7	7.3	8.3
NEW LENDING	10.8	23.0	23.4	25.3	20.6	17.5	27.4	32.4	32.5	27.5
CONV MORTGAGE RATE (%)-SEATTLE	9.5	9.2	9.3	9.4	9.4	9.2	9.1	9.2	9.4	9.2

THE FORECAST PERIOD IS 1979:4 TO 1982:4.

TABLE III
STATE OF ALASKA
SELECTED FINANCIAL BALANCES & FLOWS
(MILLIONS OF DOLLARS)

COMMERCIAL & MUTUAL SAVINGS BANKS

	1978:1	1978:2	1978:3	1978:4	ANNUAL AVG. 1978	1979:1	1979:2	1979:3	1979:4	ANNUAL AVG. 1979
CASH & DUE FROM BANKS	213.7	248.3	275.0	249.8	246.7	228.7	228.0	272.4	238.1	241.8
SECURITIES	437.3	465.2	508.9	514.0	481.4	500.1	581.6	694.5	611.3	596.9
LOANS & DISCOUNTS	1,170.3	1,244.3	1,286.0	1,242.2	1,235.7	1,222.7	1,266.0	1,262.2	1,266.5	1,254.3
OTHER ASSETS	130.3	131.8	128.0	127.0	129.3	130.1	134.7	136.5	135.4	134.2
TOTAL ASSETS	1,951.5	2,089.7	2,198.0	2,133.1	2,093.1	2,081.6	2,210.2	2,365.7	2,251.2	2,227.2
DEMAND DEPOSITS	666.8	733.6	788.5	709.3	724.5	666.2	707.5	762.3	739.4	718.8
TIME DEPOSITS	973.2	1,017.5	1,069.6	1,038.0	1,024.6	1,022.2	1,083.6	1,134.6	1,125.0	1,091.4
OTHER LIABILITIES & CAPITAL	311.6	338.6	339.9	385.8	344.0	393.2	419.1	468.8	386.8	417.0

SAVINGS & LOAN ASSOCIATIONS

DEPOSITS,BEGINNING OF QRTR	216.6	216.3	212.4	219.9	216.3	212.9	211.4	228.3	229.8	220.6
NEW SAVINGS RECEIVED	41.5	63.4	75.6	54.0	58.6	62.1	75.2	74.0	62.6	68.5
WITHDRAWALS	49.9	61.8	72.1	65.3	62.3	64.3	67.0	76.1	75.5	70.7
CHANGE IN MORTGAGE PORTFOLIOS	-1.8	14.0	-5.6	-2.6	1.0	-4.8	4.6	-2.2	-3.9	-1.6
NEW LENDING	16.4	33.6	28.6	26.5	26.3	15.4	22.6	17.5	24.0	19.9
CONV MORTGAGE RATE (%)-SEATTLE	9.5	9.7	10.0	10.2	9.8	10.6	10.7	11.1	11.9	11.0

THE FORECAST PERIOD IS 1979:4 TO 1982:4.

TABLE III
STATE OF ALASKA
SELECTED FINANCIAL BALANCES & FLOWS
(MILLIONS OF DOLLARS)

COMMERCIAL & MUTUAL SAVINGS BANKS

	1980:1	1980:2	1980:3	1980:4	ANNUAL AVG. 1980	1981:1	1981:2	1981:3	1981:4	ANNUAL AVG. 1981
CASH & DUE FROM BANKS	225.5	254.1	309.9	298.3	271.9	280.0	307.5	372.2	358.5	329.6
SECURITIES	606.0	636.4	708.5	694.7	661.4	721.4	739.8	793.3	746.6	750.2
LOANS & DISCOUNTS	1,291.0	1,383.9	1,442.3	1,424.9	1,385.6	1,420.8	1,538.3	1,628.9	1,636.5	1,556.1
OTHER ASSETS	137.3	140.2	147.3	151.2	144.0	156.7	158.2	162.8	167.3	161.3
TOTAL ASSETS	2,259.8	2,414.5	2,607.9	2,569.1	2,462.9	2,578.9	2,743.8	2,957.2	2,908.8	2,797.2
DEMAND DEPOSITS	735.4	856.9	931.1	872.7	849.0	847.6	972.5	1,052.7	985.7	964.6
TIME DEPOSITS	1,105.0	1,117.0	1,248.4	1,296.1	1,191.6	1,312.6	1,319.4	1,442.1	1,472.8	1,386.7
OTHER LIABILITIES & CAPITAL	419.5	440.7	428.4	400.3	422.2	418.8	451.9	462.4	450.4	445.9

SAVINGS & LOAN ASSOCIATIONS

DEPOSITS,BEGINNING OF QRTR	220.4	221.4	223.6	236.5	225.5	235.9	247.8	256.8	273.7	253.5
NEW SAVINGS RECEIVED	74.4	73.9	79.3	69.3	74.2	82.2	80.6	87.0	75.3	81.3
WITHDRAWALS	76.8	75.2	69.9	73.6	73.8	74.0	75.4	74.2	80.5	76.0
CHANGE IN MORTGAGE PORTFOLIOS	-8.8	-3.0	4.0	0.3	-1.9	-0.5	14.7	15.1	6.3	8.9
NEW LENDING	8.1	20.1	25.3	30.4	21.0	14.6	30.5	36.1	39.9	30.3
CONV MORTGAGE RATE (%)-SEATTLE	12.0	12.0	12.0	11.6	11.9	11.4	11.0	10.8	10.7	11.0

THE FORECAST PERIOD IS 1979:4 TO 1982:4.

TABLE III
STATE OF ALASKA
SELECTED FINANCIAL BALANCES & FLOWS
(MILLIONS OF DOLLARS)

COMMERCIAL & MUTUAL SAVINGS BANKS

	1982:1	1982:2	1982:3	1982:4	ANNUAL AVG. 1982
CASH & DUE FROM BANKS	331.6	368.9	448.0	428.1	394.2
SECURITIES	759.4	782.6	839.2	777.2	789.6
LOANS & DISCOUNTS	1,646.0	1,782.3	1,882.4	1,883.8	1,798.6
OTHER ASSETS	174.7	176.2	180.6	183.6	178.8
TOTAL ASSETS	2,911.8	3,110.0	3,350.3	3,272.7	3,161.2
DEMAND DEPOSITS	962.2	1,114.5	1,215.8	1,142.2	1,108.7
TIME DEPOSITS	1,471.4	1,471.7	1,594.9	1,602.9	1,535.2
OTHER LIABILITIES & CAPITAL	478.2	523.7	539.6	527.6	517.3

SAVINGS & LOAN ASSOCIATIONS

DEPOSITS,BEGINNING OF QRTR	272.7	284.0	291.8	308.4	289.2
NEW SAVINGS RECEIVED	90.1	89.1	97.0	83.2	89.8
WITHDRAWALS	83.1	85.6	84.9	93.2	86.7
CHANGE IN MORTGAGE PORTFOLIOS	3.0	16.8	16.7	6.9	10.8
NEW LENDING	22.9	38.4	44.3	47.3	38.2
CONV MORTGAGE RATE (%)-SEATTLE	10.5	10.5	10.5	10.5	10.5

THE FORECAST PERIOD IS 1979:4 TO 1982:4.

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the alaska economic information & reporting system

quarterly report

april 1980

alaska division of economic enterprise

THE
ALASKA ECONOMIC
INFORMATION AND REPORTING SYSTEM

QUARTERLY REPORT
APRIL 1980

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INTRODUCTION

This issue of the AEIRS **QUARTERLY REPORT** departs from tradition by omitting the updated forecast of employment and income. Instead, this REPORT concentrates more fully on a description and analysis of today's inflation, its causes, and the outlook for the longer term. One of the highlights of the analysis is a critical examination of the monetarist, government deficit, and excess demand explanations of the recent inflation experience. The extent to which each fails to account for this experience is noted and an alternative explanation is offered.

In the second paper published in the REPORT an attempt is made to lay out a framework for the analysis of proposed public subsidies to economic development projects in Alaska. Subsidies are defined and distinguished from public investments. The point is made that Alaska development projects requiring a permanent subsidy in excess of induced revenue are, in fact, oil dependent and, as such, may do little or nothing to provide an alternative to petroleum development as an economic base for Alaska. This leads to an introductory discussion of the feasibility of stimulating permanent economic growth through the use of temporary subsidies. Because the issue of public subsidies is extremely sensitive the paper diligently avoids making specific recommendations apart from a call for more organized formal research into the economics of Alaska development in general, and subsidized development in particular.

The July 1980 issue of the AEIRS **QUARTERLY REPORT** will revert to the established format and present an updated forecast of Alaska economic activity.

I. INFLATION TODAY

The public is well aware of the fact that double digit increases in consumer prices have plagued the United States economy for an extended period of time. In this section both the national and the State experience is documented and analysed. Evidence is presented which suggests that several of the more popular explanations for today's inflation are less than credible. Finally, a tentative look is taken at the inflation outlook for the next two years.

RECENT INFLATION - U.S.

The bare facts are that over the past year and one-half the rate of consumer price inflation in the United States as a whole has accelerated well into double digit figures (Table 1). In January and February 1980, the all items, all urban consumer price index for the country as a whole (CPIU-US) increased at an 18.0 percent average annual rate. Speculation as to whether or not inflation is "out of control" has surfaced in a number of respected publications.

Shelter and energy price changes receive a combined weight of approximately 38 percent in the determination of the U.S. average all items, all urban consumer price index (CPIU-US). The weight on shelter prices alone is 29 percent, while that on energy prices is 8.5 percent.

A good way to appreciate the relative impact of shelter and energy price inflation on the performance of the all items CPIU-US is to consider the portion of the all items increase accounted for solely by shelter and energy price increases. For the year ended July 1979, shelter and energy price increases accounted for 57.2 percent of the increase in the CPIU-US. Since July 1979 (through February 1980), this figure averaged 65.8 percent. To put this in perspective, if all prices always increased at the same rate, shelter and energy price increases would account for only 38 percent of the total increase.

RECENT INFLATION - ALASKA

While recent Alaska inflation rates have been high, they have not been quite as high as those for the U.S. as a whole. Over the most recent twelve month period for which data are available (see Table II) the Anchorage and Fairbanks All Urban Consumer Price Indexes rose by 10.1 percent and 10.2 percent, respectively. The U.S. increase for the same period was 14.1 percent. Just as in the country at large, Alaska inflation has been paced by increases in shelter and energy prices.

The slower pace of inflation in Alaska was not an "across-the-board" phenomenon, but rather reflected a much lower rate of increase (relative to the U.S. average) in housing and transportation prices, the two most heavily weighted components of the all items, all urban consumer price indexes for Anchorage and Fairbanks. In other words, while shelter (a component of housing) and energy prices set the inflation pace both in Alaska and in the country at large, they set a slower pace in Alaska. This almost certainly reflects special demand-supply factors in the State, in particular, the relative oversupply of residential housing and the general weakness of the Anchorage and Fairbanks economies in 1979.

TABLE I
Recent Rates of Inflation
(percent, annual rate)

	July '78 Thru July '79	Aug. 1979	Sept. 1979	Oct. 1979	Nov. 1979	Dec. 1979	Jan. 1980	Feb. 1980
U.S. Average								
All Items	11.3	12.7	12.7	11.4	11.4	14.0	18.2	17.8
Shelter	13.6	21.0	18.2	22.4	22.4	18.1	23.9	15.6
Energy	29.1	45.9	37.7	14.0	1.2	25.3	69.6	81.5
All Items Except Shelter & Energy	7.7	4.2	6.8	6.0	7.7	10.5	8.5	10.1
Anchorage								
All Items	10.0		18.0		1.2		13.3	
Shelter	13.0		20.1		(-1.8)		21.5	
Energy	19.7		83.0		0.6		20.8	
All items Except Energy & Shelter	6.4		8.0		3.6		5.8	

TABLE II
Consumer Price Inflation*
Most Recent Twelve Months
(percent)

	U.S.[1]	Anchorage[2]	Fairbanks[1]
Apparel and Upkeep	6.5	5.3	-1.7
Food and Beverages	7.3	7.7	5.4
Entertainment	8.0	5.3	6.8
Housing	16.2	10.6	10.9
Transportation	22.5	14.6	17.1
Medical Care	10.9	8.2	13.5
Other Goods and Services	8.4	8.7	7.8
All Items	14.1	10.1	10.2
Memo:			
Shelter	18.3	11.5	11.7
Energy	46.6	36.4	34.2

*As measured by the All Urban Consumer Price Index

1/ February 1979 through February 1980
2/ January 1979 through January 1980

INFLATION AND INTEREST RATES

Rising rates of inflation drive up interest rates by causing borrowers and lenders to revise upward their expectations of future inflation rates. Money is lent at interest rates that reflect both borrower and lender **expectations** as to what the rate of inflation will be during the period of time the loan is outstanding.

The real (inflation adjusted) interest rate on bonds, promissory notes, bank deposits and other certificates of debt is approximately equal to the difference between the nominal interest rate and the rate of price inflation over the period of time the debt is outstanding.[1] If the rate of inflation exceeds the nominal interest rate, the real rate of interest is negative. In such a case, nominal interest payments are insufficient to offset the inflation-caused decline in the value of the currency used to repay the debt.

Since late 1972 many high grade bonds and short term securities have offered negative real yields. If one assumes that lenders would not intentionally contract for a negative real interest rate, the implication is that for eight years lenders have systematically and persistently underestimated the future rate of inflation. Table III documents this experience for the case of 90-day U.S. Treasury bills, four to six month commercial paper, and three to five year U.S. government bonds.

Between the first quarter of 1972, and the fourth quarter of 1979, the real interest rate on 90-day U.S. Treasury Bills was negative in twenty-six of thirty-two quarters, that on four to six month commercial paper was negative in twenty-three of thirty-two quarters, and that on four to six year U.S. government notes was negative in twenty-eight of thirty-two quarters. Over the period 1972:1 through 1979:4 their respective mean real interest rates were -1.84 percent, -1.15 percent and -2.08 percent. In contrast, the mean real interest rates posted by these same three securities over the preceeding eight year period (1964:1 through 1971:4) were 1.22 percent, 1.96 percent and 0.62 percent, respectively.

What can explain the existence of persistently negative real interest rates in markets dominated by sophisticated lenders? One hypothesis is that lenders have simply been that wrong, that long, about inflation. It is certainly a fact that many economic forecasters (including the President's Council of Economic Advisors) have consistently underestimated inflation throughout most of the 1970's. A look at past inflation forecasts made by the President's Council of Economic Advisors shows that between 1972 and 1979, their forecast was below the subsequent economy wide rate of inflation in five of eight years, above it in two years, and essentially correct in one year.[2]

1/ To a second order approximation the real interest rate is defined by the following expression: $r = (i - \pi) \times (1 - \pi)$, where r is the real interest rate, i is the nominal interest rate and π is the rate of price inflation as measured by the percent change in some price index (usually the all urban consumer price index). The usual definition, $r = i - \pi$ is a first order (linear) approximation. For large values of $(i - \pi)$ and π, the second order approximation is preferred.

2/ The mean absolute difference was -1.09 percentage points.

TABLE III
Selected Real Interest Rates
(percent)

Calendar Quarter	90-Day T-Bill	4 to 6 Month Comm. Paper	3 to 5 Year T-Notes
1972: 1	0.39	0.80	-2.32
2	0.30	1.02	-2.10
3	0.57	0.06	-2.10
4	-1.26	-2.27	-2.10
1973: 1	-3.39	-2.39	-1.73
2	-1.64	-1.59	-1.47
3	-1.56	-1.30	-0.59
4	-4.98	-3.05	-0.91
1974: 1	-3.97	-3.46	-0.45
2	-3.80	-1.91	0.72
3	-4.58	-1.17	1.28
4	-0.65	1.97	0.65
1975: 1	-0.41	-0.51	-0.08
2	-2.60	-1.65	-0.04
3	-0.82	0.89	0.21
4	1.21	1.60	-0.59
1976: 1	0.30	0.16	-1.54
2	-0.47	0.14	-1.99
3	-0.08	-1.15	-2.64
4	-3.47	-3.11	-3.97
1977: 1	-3.43	-1.80	-3.90
2	-0.35	-0.04	-4.14
3	0.15	-0.78	-4.39
4	-1.74	-2.41	-4.38
1978: 1	-3.78	-2.70	-4.25
2	-2.34	-1.78	-4.01
3	-1.82	-2.01	-3.94
4	-2.49	-2.44	-3.67
1979: 1	-4.25	-3.17	-3.40
2	-3.53	-3.22	-3.43
3	-3.56	-2.29	-3.40
4	-0.71	0.55	-1.75

Note:
In all cases the real interest rate is defined to equal the difference between the nominal interest rate and the percent change in the all urban consumer price index where both are stated at annual rates. For example, the real interest rate on 90-day U.S. Treasury Bills shown for a given quarter is the nominal historical average new issue rate for that quarter less the rate of consumer price inflation for the following 90 days. Commercial paper was assumed to mature in six months and U.S. Treasury Notes in four years.

The fact that many economic forecasters have consistently underestimated national inflation rates for the past eight years does not completely explain the persistence of negative real interest rates over the period. One would expect that lenders would have learned to tack a one or two percentage point premium onto published inflation forecasts. A fuller, more plausible explanation of the negative interest rate experience of the 1970's is called for.

A fuller explanation should include two points. First, lenders do not unilaterally dictate the level of interest rates. Others, particularly the Federal Government, and also the Federal Reserve, have much to say in the matter. If lenders are not too adament about adding an extra inflation premium onto interest rates, the Federal Reserve is fully capable of enforcing a rate level consistent with published inflation forecasts, even when the forecasters are known by lenders to have systematically erred on the low side in the past.

Second, the alternatives to high grade securities are lower grade securities, commodities, other real assets and money. It may be that lenders reluctantly accepted what they (correctly) expected to be a negative real yield on high grade securities because they believed that the alternatives offered an even lower expected real yield.

The real yield on money is the negative of the inflation rate and thus much more negative than the real yield on high grade securities. Commodity speculation and investment, and investment in exotic assets (art, stamps, etc.) has traditionally been viewed as "nonprudent" by financiers. One does not have to strain to envision an equilibrium pattern of interest rates that matches recent historical experience, even given the possibility that many lenders may have doubted published inflation forecasts. In a sense, lenders may have accepted what they felt were inadequate real yields because economic experts were (afterall) forecasting a reduction in inflation and because they themselves were prejudiced against investment in commodities and exotic real assets. Sooner or later, however, one would expect these lenders to examine their prejudice against commodities and exotic assets, given that throughout this period such investments have offered very high real yields. In point of fact, this now seems to be occurring. Real interest rates on high grade securities may be rising to record heights now at least partly because more and more lenders are abandoning bond markets in favor of commodities and investment in other real assets. It may have taken eight years of negative real yields to beat down the prejudice against commodity investment.

WHAT IS CAUSING INFLATION?

Are there one or two most important causes of today's inflation or are a variety of factors responsible? If there are one or two identifiable primary causes, have they been accurately identified by policy makers? The answers to these questions are important to all of us. Right now, it would appear that the Carter Administration and the Federal Reserve Board have decided that the best way to fight inflation is to force the national economy through a major recession, with its attendant costs in lost output and unemployment. For such a policy to succeed in permanently lowering the rate of inflation to the six percent range, the national unemployment rate would likely need to be pushed to about nine percent and held there for several years.[1] The 1975 recession which produced unemployment rates in excess

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1/ According to a recent **Business Week** article, the late Arthur Okun, former Chairman of the President's Council of Economic Advisors, and Data Resources, Incorporated, a major national economics forecasting team, both reached this general conclusion (**Business Week**, March 31, 1980, p.82).

TABLE IV
Annual Rate of Growth of Domestic Money Supply
(percent)

Year Ended	M1	M2	M3
Dec. 31, 1974	4.6	7.2	6.7
Dec. 31, 1975	4.3	8.6	11.4
Dec. 31, 1976	6.2	11.4	13.1
Dec. 31, 1977	7.9	9.3	11.2
Dec. 31, 1978	6.7	8.6	9.4
Dec. 31, 1979	5.7	8.4	8.0
Geometric Mean	6.0	8.9	9.9

DEFINITIONS: M1 is currency plus demand deposits;
M2 is M1 plus time and savings deposits at commercial banks other than large certificates of deposit;
M3 is M2 plus deposits at nonbank thrift institutions.

SOURCE: Calculated from data provided by the Board of Governors of the Federal Reserve System.

of nine percent was followed by a dip in the rate of growth of the consumer price index from 9.1 percent in 1975 to 5.8 percent in 1976. However, the following year the rate of consumer price inflation increased to 6.5 percent, followed by a further increase in 1978 to 7.7 percent, as economic recovery proceeded.

Although the Alaska economy is well insulated from the direct demand effects of a national recession, a particularly severe recession could have serious side effects on the State. New investment in Alaska by U.S. firms would likely be reduced during a severe recession both because of a recession-induced decline in profits available for investment and because the firms may envisage difficulty in marketing whatever products are produced (for example, tourist services and processed minerals). More importantly, even a severe U.S. recession is unlikely to much restrain the rise in world petroleum prices. The combination of high unemployment, reduced real income and steadily increasing fuel oil, gas, and gasoline prices could produce an overwhelming national mandate to Congress to reimpose price controls on domestically produced oil and gas, or to substantially stiffen the windfall profits tax. It goes without saying that either move could drastically alter Alaska's economic future.

For these reasons we have decided to examine more closely the principal explanations which have been given for today's inflation.

Milton Friedman and the Chicago monetarists argue that "inflation is always and everywhere a monetary phenomenon." Table IV shows the annual rates of growth of three leading measures of the money supply for the years ended December 31, 1974 through December 31, 1979. For the past two years all three measures have exhibited declining rates of growth. One would expect if money supply growth was the prime cause of inflation, that the inflation rate would be declining, not increasing. Furthermore, one might expect inflation rates somewhere near the rates of growth of the money supply. For the past year and one-half, the percent increase in consumer prices has exceeded the year earlier increase in the fastest growing money supply measure by several percentage points. Finally, the January and February inflation performance where the all items CPIU-US advanced at an annual rate of about eighteen percent each month, simply cannot be explained by the monetarists without invoking special considerations that render their theory vacuous (tautological).

Irwin L. Kellner in the March 1980 **Economic Report** of Manufacturers Hanover Trust Company states: "The real cause (of inflation) is too much money . . . In other words—inflation is a monetary phenomenon. That's it—pure and simple." Mr. Kellner, unfortunately, fails to adequately address himself to the disquieting evidence against the simple monetarist position presented in Table IV. I suppose one could argue that money growth impacts inflation three years later. One could then point to the 13.2 percent rate of M3 growth realized in 1976 as the "cause" of 1979's inflation. What then is the cause of 1980's 18 percent inflation? The 11.2 percent money growth experienced in 1977?

A second related and commonly offered "cause" of inflation is government deficit spending. Again, the evidence in support of that theory is simply not very strong.

The Federal Government does not control the money supply. The Federal Reserve Board does. If as argued above, excessive money supply growth cannot explain today's inflation, then the fact that the Federal Reserve Board deals in Federal securities does not create an analytical difference between Federal deficits and state-local deficits. In other words, if

TABLE V
Government Deficits in Perspective

	Federal Government	State and Local Governments	Total Government
Surplus or Deficit (-), NIA Basis[1] (Billions of $)			
1974	-10.7	7.6	-3.2
1975	-70.6	6.2	-64.4
1976	-53.6	17.9	-35.7
1977	-46.3	26.8	-19.5
1978	-27.7	27.4	-0.3
1979	-10.5	24.4	14.0
1941 to 1945 Annual Average	-36.3	10.9	-25.4
Surplus or Deficit as Percent of GNP (%)			
1974	-0.8	0.5	-0.2
1975	-4.6	0.4	-4.2
1976	-3.1	1.1	-2.0
1977	-2.4	1.4	-1.0
1978	-1.3	1.3	0.0
1979	-0.4	1.0	0.6
1941 to 1945 Annual Average	-18.8	1.2	-16.6

1/ National income and product accounts basis.

SOURCE: U.S. Department of Commerce, Bureau of Economic Analysis

excessive money growth is not the cause of today's inflation, then why should one single out Federal deficit spending as the cause? If there is some other reason than excessive money creation why government deficits cause inflation, then that reason should pertain to state-local deficits as well (in the absence of some other theory).

Therein lies the problem with the government deficit theory of inflation. Consider Table V. In 1978 the combined Federal-state-local government deficit in the national income accounts (NIA) was essentially zero ($0.3 billion). In 1979, it was in **surplus** by $14.0 billion. Since 1975, the combined government budget deficit has declined steadily. Unless one assumes some sort of very special lagged effect of government deficits on inflation, it is hard to see how declining government deficits can be the cause of increasing inflation, and why balance and surplus the past two years has had no perceptive effect.

While this point is not quite so strong when the Federal deficit is considered on its own, it is nonetheless still valid. The NIA Federal deficit has declined every year since 1975. Should this produce increasing inflation?[1]

Inflation hit 10.7 percent in 1942 just prior to the imposition of wartime controls. At the time, however, the Federal deficit was $31.4 billion, a figure larger than either the 1978 or the 1979 Federal deficit. Furthermore, the $31.4 billion Federal deficit in 1942 constituted 20.9 percent of Gross National Product (GNP) in that year. Since 1974, the NIA Federal deficit has not exceeded 4.6 percent of GNP. In 1978 it was only 3.1 percent of GNP and in 1979 it fell to 0.4 percent of GNP. Is that a description of an engine of inflation?

There is one other popular leading candidate for chief "cause" of today's inflation. From time to time one hears that the cause of today's inflation is an overheated national economy. However, with a nationwide housing recession in progress, unemployment rates over 6.0 percent, and productive capacity utilization rates well below historic peaks and dropping, this explanation goes the way of excessive money growth and excessive deficit spending. All three popular theories simply do not bear up well under the evidence.

When one stops to think about it, one should not be surprised that conventional theories fail to account for today's inflation. As was observed above, throughout the decade of the 1970's, forecasters systematically underestimated future inflation rates. What has been suggested here is that the reason for the systematic underestimation was, quite simply, that conventional theories were inadequate. Forecasters who observed the data presented in Tables IV and V as they became available, had no basis for projecting the inflation that actually came to pass.

Is there a correct explanation for today's inflation? The answer is "No!" if by correct one means an answer that everyone will agree upon and which is capable of faultlessly explaining the recent historic experience. What follows is conjecture, a theory, but one which is at least plausible and consistent with experience.

1/ The unified budget Federal deficit has declined every year since 1976.

A given supply of money can finance a growing dollar volume of transactions per time period if it changes hands more often (or as economists would say, if the velocity of money increases). This much is definitional. The key to understanding today's inflation is understanding why the velocity of money has been increasing.[1] Stated so briefly that it begs criticism, a very good answer is that increased efficiency in processing transactions (electronic funds transfer, computerized check clearing, increased use of plastic money, etc.) has occurred at a time when external shocks (particularly OPEC price increases) have triggered an especially virulent wage-price spiral. Advances in banking technology have made possible a burst of inflation, and external shocks have kicked it off in a self-sustaining, self-accelerating spiral. Expectations have become attuned to increasing inflation.

The term "core" rate of inflation has entered our vocabulary in recent years. The core rate of inflation is that part of actual inflation which is explained by regulatory factors, loss of productivity, the direct effect of energy price increases, and other traditional factors. Various estimates place today's core rate of inflation at about 8 percent to 9 percent. What is needed is an explanation of inflation in excess of this core rate.

Today's inflation traces its roots all the way back to the excess demand generated during the Vietnam War as a result of national attempts to produce both guns and butter. Over the years since, our economic system has become increasingly sensitive to inflationary shocks. Reponse lags have shortened as automatic inflation adjustment clauses were first written into labor contracts, and later into sales contracts and mortgages. People became more and more accustomed to inflation and more and more willing and able to demand higher wages and prices, not only in response to past inflation but also in anticipation of expected inflation. As it became clear that consensus forecasts of inflation tended to be persistently low, the wage and price spiral began to speed up. OPEC price shocks contributed both directly to increasing inflation, and indirectly by acting as a highly visible signal that prices were on the rise.

In short, a classic wage-price spiral has become entrenched and has been "financed" not so much by growing increases in the **supply** of money as by increases in the **velocity** of money made possible by advances in banking technology.

In a world of administered prices such a process can explain today's inflation, even in a slack economy with declining money supply growth. Technology has opened the door to inflation by increasing the **potential** velocity of money. An inflationary psychology triggered by external shocks has moved the economy across the threshold.

WHAT CAN BE DONE?

The velocity of money cannot increase without limit in a given period of time. If a sufficiently stringent tight money policy is pursued long enough, the national economy will enter a severe recession and ultimately will purge itself of its inflationary spiral. This is the policy presently being pursued by both fiscal and monetary authorities.

1/ If the velocity of money had not increased over the past several years, a declining rate of growth of the money supply would not be consistent with increasing inflation and a rising (or constant) real volume of transactions.

A second method of slowing inflation to an acceptable level is mandatory wage and price controls. Historically, controls have not proven to be indisputably effective. At least part of the reason for their checkered history has to be the lack of effort that the economics profession has devoted to the problem of implementing controls efficiently. A generous estimate of the amount of research that has gone into the question of how to effectively implement controls would place it at about one-tenth of one percent of the effort put into examining the implications of Freudian psychology for financial analysis. In other words, it is no surprise that controls have been managed badly. Ignorance demands failure.

This is not the place to propose sweeping policy changes. It is, however, the place to lay out for our readers our best judgement of the choices before us and the implications of those choices. To that end it should be understood that the economics profession is not at a loss as to how to stop inflation, it is only at a loss as to how to stop it painlessly. To stop inflation (or at least to bring the annual rate down to the six percent range) the nation must undergo either a multi-year recession of some severity, or a multi-year period of mandatory wage and price controls. In neither case, however, can one hope to permanently arrest inflation as long as external shocks continue and, in particular, as long as OPEC continues to create periodic upheavels in world petroleum markets.

THE INFLATION OUTLOOK

There is a near zero chance that the United States will have the political will to endure either a severe multi-year recession or a multi-year period of mandatory wage and price controls. More than a few months of nine percent unemployment will almost certainly trigger stimulative fiscal and monetary policies. More than a year of mandatory controls will almost certainly trigger a relaxation of those controls. If the national economy experiences neither a multi-year recession nor a multi-year period of mandatory controls, it is very unlikely that inflation will be brought permanently below a rate of eight or nine percent per year.

What is likely is that one of the two "cures" (recession or controls) will be taken for a short while. At the moment, it appears that the Carter Administration will continue with the Federal Reserve in pursuit of the recession alternative. However, if the annualized rate of consumer price inflation does not soon start heading back to single digit levels, the public outcry for controls will become nearly unbearable. The question then will be whether or not Mr. Carter can bring himself to adopt the very policy advocated by his chief Democratic challenger for the Presidency. An informal consensus opinion that has surfaced is that if real progress against inflation is not seen by mid-June, Congress will authorize the President to invoke mandatory wage and price controls.

From our vantage point, there is only a 50-50 chance that recession will make inroads against inflation by mid-year. As far as controls are concerned, the key would seem to be the outcome of the Democratic convention. Whether or not Mr. Kennedy receives the nomination, there is a very real chance that the Democratic Party will write a controls plank into the platform and force Mr. Carter to run on it, unless inflation abates significantly over the next several months.

In short, the national economy's performance over the next six to eighteen months will be heavily influenced by presidential politics which, in turn, will be heavily influenced by the

inflation performance of the next three or four months. In the face of what some call the beginnings of runaway inflation, economic analysis of the future is doubly handicapped. While there is every reason to believe that inflation will slow by year's end, there is no way to predict with confidence whether it will slow because of recession, mandatory controls or both.

For the record, the present AEIRS forecast of Alaska inflation shows the Anchorage and Fairbanks consumer price indexes increasing at about fifteen percent annual rates in 1980, declining to about eight percent annual rates in 1981, and then reaccelerating to ten percent annual rates in 1982. This falling, then rising pattern is premised on the assumption that whatever federal anti-inflation policy is adopted, will be adopted for at most one year.

SPECIFIC IMPACTS ON ALASKA

As long as world oil price increases average an expected three to five percentage points in excess of the rate of consumer price inflation, the United States economy will be susceptible to periodic inflation crises. For the foreseeable future, it is reasonable to expect consumer price inflation on the order of eight to ten percent per year. As far as Alaska is concerned, one important question is "What does an annual rate of inflation of eight to ten percent, coupled with crude oil price increases of eleven to fifteen percent mean to the State's economy?"

By and large, it means that real (inflation adjusted) Alaska State government petroleum revenue will grow by about three to five percent per year, and, therefore, that spending will also show strong year-to-year gains. At the very least, therefore, one should not expect State government to become a fiscal drag on the Alaska economy for the next five years or so.

Nominal interest rates will remain high. However, if real (inflation adjusted) interest rates do not also remain at historically high levels, there is nothing intrinsically debillitating about double digit nominal interest rates. During credit crunch periods such as the one we are presently in, the State's relatively strong cash flow position could allow it to partly insulate the Alaska economy from temporarily high real interest rates. This is a policy option which deserves more careful consideration than can be given here. In general, there is no reason to expect high real interest rates to prevail in national markets for a long period of time.

In general, the major threat to Alaska presented by the present national economic crisis is a return to petroleum price controls. If petroleum prices continue to rise nationally at rates three to five percentage points in excess of the rate of consumer price inflation, the associated transfer of wealth from the bulk of the country (petroleum consumers) to Alaska (petroleum producers) may be self-terminating. It is not beyond the realm of imagination that the combination of high real energy prices and slow (or no) growth of real income should set off a public clamor for either recontol of petroleum prices (possibly with a rollback) or for a confiscatory windfall profits tax with associated national redistribution of the proceeds.

II. CAN SUBSIDIES MATTER?

The word "subsidy" as used here denotes any transaction that reduces at public expense, the costs of doing business for a private venture. A subsidy should be distinguished from a public investment. In the case of a public investment, a market level uncertainty adjusted dollar rate of return is expected at the time public funds are committed.[1] A subsidized venture, on the other hand, offers its uncertain future return partly or entirely in the form of jobs or in the form of some other public benefit. The jobs and other public benefits are viewed as compensation for a below normal uncertainty adjusted money rate of return to the public investor. A subsidized venture by virtue of its need for subsidy either would not be launched without subsidy or would not be done in the same way or in the same place, or under the same conditions as it would without subsidy.

Public opinion on the use of subsidies to promote economic development can be partitioned into three categories. First, there are some who, with few exceptions, are prepared to advocate State subsidies for nearly every project that is proposed. Second, there are those who argue that studies done elsewhere "prove" (or at least strongly suggest) that temporary subsidies cannot permanently increase the level of economic activity in Alaska. Finally, there is the opinion shared by the majority of Alaskans, to the effect that a subsidy is worthwhile if it can be shown to produce an acceptable net economic benefit. Prominent among those whose opinions fall into this latter group is Governor Jay Hammond who has frequently made the point that the goodness or badness of a particular subsidy depends upon the relative size of the benefits and costs it generates.

This article is a discussion of the potential effectiveness of temporary subsidies in contributing to the creation of new permanent jobs in Alaska. The issue is of vital importance. If subsidies to private industry cannot influence private industrial location decisions, or if subsidies are influential only as long as they stay in place, then there is no compelling economic argument for their use. On the other hand, if selected temporary subsidies really can play a role in generating self sustaining economic growth, a case can be made for their use here in Alaska. From this it follows that a case can also be made for retaining a significant part of Alaska's oil wealth in a fund that can be tapped for such a purpose when a justifiable application rises.

The issue of the potential effectiveness of subsidies is not the only controversial aspect of their use. Even if temporary subsidies can be shown to be effective in generating permanent economic growth, one might still argue, as others have, that Alaska ought not to encourage economic growth because a larger economy conflicts with the Alaskan lifestyle. For the sake of a sharpening of focus, this point will not be discussed here.

In the next section, the question of whether or not Alaska subsidies can influence industrial location decisions will be addressed. At that stage, no attempt will be made to differentiate between temporary or permanent subsidies. The question discussed there is "Does Alaska have enough dollars and a broad enough array of policy tools at its disposal to hope to bring about an increase in the number of private sector jobs in the State?" Some readers will feel as though the material in that section belabors the obvious. It may, but if it does, it does so because even the obvious should be written down and supported at some point. The final section takes up the question of the potential for **temporary** subsidies to make a **permanent** difference in the number of jobs available to Alaskans.

1/ Investors demand a higher rate of return, the more uncertain the project's future profitability.

THE INDUSTRIAL LOCATION DECISION

It is one thing to observe that a particular type of subsidy **has not**, on balance, noticeably altered the interstate allocation of aggregate economic activity in the Lower 48 states. It is quite another thing to say that the presently accruing pool of public Alaska financial capital **cannot** be effective in stimulating sustainable Alaska economic growth. In what has to be a classic non-sequitur, some persons have on occasion argued that subsidies cannot be effective in Alaska because many studies show that tax incentives and municipal bond offerings have not been markedly influential in the Lower 48. Alaska's economic environment is sufficiently different from that of the other states that the results of studies done elsewhere cannot be casually generalized to our situation.

A statement which will be treated here as an axiom is that, all other things equal, new industrial plant locations are chosen from a list of candidates on the basis of maximum uncertainty adjusted profitability.[1] A second axiom is that the larger the investment, the more intensive and organized the search for a location which maximizes profitablity.

Multi-million dollar investment decisions are made carefully. Billion dollar investment decisions are labored over. Managers who may respond to a variety of off-hand incentives in conducting their day-to-day operations, become relatively strict profit maximizers (allowing for uncertainty) when evaluating alternative plant sites.

We live in a world of uncertainty. For some producers, uncertain energy and raw material supplies lower the expected scale of output and the expected volume of profits over the life of an investment. If periodic energy and raw material shortages are expected to reduce the annual volume of salable output and also to reduce profits,[2] then all other things equal, a plant will be located where it can obtain an assured supply of energy and raw materials. At the very least, the assurance of stable long term energy and raw material supplies can offset costs which might be higher than at another location.

The State of Alaska can reduce taxes, subsidize operating costs, subsidize plant construction, assure energy supplies, and in some cases, guarantee a long term supply of raw materials. In short, the State has it in its power to alter the profitablity of production in Alaska. Therefore, it can influence industrial location decisions in favor of location in Alaska, at least marginally. This much should be virtually indisputable. The key questions are (1) by how much can the State alter the relative profitability of doing business in Alaska? and (2) can temporary subsidies generate a permanent increase in jobs. Question (1) is the issue to which we now turn. Question (2) is discussed after that.

ALASKA'S POTENTIAL CLOUT

The profitability of production in Alaska is low for certain industries which must export or which require a large in-state market. Clearly, some Alaska export industries such as fish production and wood processing presently offer adequate profits to keep them in existence, as do smaller businesses selling to the small Alaska market. The subsidy issue is raised be-

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1/ For the sake of precision: All other things equal, a new plant will be located where the present value of future certainty equivalent profits is maximized.

2/ The expected profit reduction depends on the price response to output reductions.

cause growth possibilities in these areas do not promise enough job creation to offset the decline in the State's petroleum base which must someday occur. Whether the decline in the Alaska petroleum industry occurs in ten years or forty years is almost academic. If Alaska is fortunate enough to experience, say, a forty year petroleum boom, there may be time to develop an alternative economic base if appropriate State development policies are successfully pursued. However, under no circumstances would the potential for relatively long term stimulus from petroleum development alter the need to begin now to generate an economic substitute, if a future crisis is to be avoided, and if such subsitutes can be found.[1]

Given Alaska's need to examine growth possibilities in industries which may not be profitable today, does Alaska have the policy tools and financial wherewithal to raise the profitability of presently low profit industries to the point where they will be located in the State? A comprehensive answer really cannot be given here. However, an examination of the data available does suggest that permanent subsidies which are not unthinkably large could stimulate major new industries to locate here.[2]

Data from the U.S. Census Bureau's Annual Survey of Manufacturers for 1976 for three electrical energy intensive industries are presented in the text table. The three industries are primary aluminum (SIC 3334), primary copper (SIC 3331) and hydraulic cement (SIC 3241).

Nationally in 1976, these three industries employed 68,700 workers. If we assume that wage and salary rates in Alaska are forty percent above the national average, the amount of annual subsidy, in 1979 dollars, needed to offset higher Alaska labor costs **for the entire 1976 industry** in these three industries combined is $735.5 million. On a per firm basis averaged across all three industries, the annual subsidy (1979 dollars) required to offset higher Alaska labor costs would be, at most, $2.6 million. If we assume that a doubling of this annual subsidy would be enough to offset Alaska's higher construction costs and distance from the market in which the product would be sold, it would appear that an annual maximum direct subsidy of about $1.5 billion (1979 dollars) would be enough to attract the nation's entire primary copper, primary aluminum and hyrdaulic cement industries to Alaska (ignoring the cost of transporting raw materials to the processor).

Now, it is not being suggested that Alaska attempt to attract these three industries in their entirety or even in part. Nor is consideration of permanent subsidies being urged. However, it is being suggested that the magnitude of direct subsidy needed to attract a significant part of such industries is managable. It may not be worthwhile. There may be more cost effective ways to proceed. But at least it would appear that the attraction of a substantial share of new investment in these industries (and possibly others) to Alaska is a financially do-able task. In fact, if Alaska were to attract a large segment of these industries here, the per

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1/ See, for example, "Alaska's Emerging Fiscal Crisis" by the economists at the Alaska Pacific Bank, or "Government Fiscal Planning in the Face of Declining Resource Revenue: The Alaska Case," Reaume, D. M., Alaska Department of Commerce and Economic Development, December 1977.

2/ Again, in the next section, the logical possibility of temporary subsidies achieving the same results will be discussed.

ECONOMIC CHARACTERISTICS OF SELECTED INDUSTRIES
1976
(dollar amounts in millions)

Entire Industry	Primary Aluminum (SIC 3334)	Primary Copper (SIC 3331)	Hydraulic Cement (SIC 3241)	Total of Three
Value of Shipments	1,465.9	3,549.7	2,603.8	7,619.4
Salaries and Wages	461.6	221.8	445.3	1,128.7
Supplemental Labor Cost	121.7	68.6	124.2	314.5
Cost of Materials	2,314.1	2,759.7	1,163.5	6,237.3
Memo: Value Added	3,852.9	746.0	1,461.3	6,060.2
Memo: Purchased Electricity	470.9	N/A	185.6	N/A
Number of Establishments	54	32	192	278
Employment	26,300	14,300	28,100	68,700
Per Establishment				
Value of Shipments	27.146	100.928	13.561	
Salaries and Wages	8.548	6.931	2.319	
Supplemental Labor Cost	2.254	2.144	0.647	
Cost of Materials	42.854	86.241	6.060	
Memo: Value Added	71.350	23.312	7.611	
Memo: Purchased Electricity	8.720	N/A	0.967	
Employment	487	447	146	
Per Establishment (1979 $)[1]				
Value of Shipments	34.587	141.333	17.278	
Salaries and Wages	10.891	8.831	2.955	
Supplemental Labor Cost	2.872	2.732	0.824	
Cost of Materials	54.600	109.880	7.721	
Memo: Value Added	90.907	29.702	9.697	
Memo: Purchased Electricity	11.110	N/A	1.232	

1/ Inflated by the U.S. Producer Price Index for Industrial Commodities.

2/ Source: Annual Survey of Manufactures, 1976, "Industry Profiles," Services M76(AS)-7, U.S. Bureau of Census, Washington, D.C., June 1978. Also Annual Survey of Manufactures, 1976, "Fuels and Electric Energy Consumed," Series M76(AS)-4.1, U.S. Bureau of Census, Washington, D.C., March 1978. The Number of Establishments is from County Business Patterns, 1976, "U.S. Summary," Series CBP-76-1, U.S. Bureau of Census, Washington, D.C., August, 1978.

establishment subsidy might decline. Once a major portion of an industry's product is Alaskan, the Alaskan firms would begin to acquire the market power needed to pass their higher costs onto their customers.

INDUCED PUBLIC EXPENDITURE

The figures discussed above represent direct subsidies to the industries. A form of indirect subsidy is the "extra" state and local government expenditure needed to support the increased population which accompanies job creation. In this context, "extra" refers both to the fact that growth brings more people and to the fact that in Alaska marginal per capita tax revenue generated by new (nonpetroleum) economic growth is not expected immediately to equal the marginal per capita public spending requirements imposed by that growth. This situation is another manifestation of Alaska's extreme dependence on the petroleum industry. A few arbitrary (though roughly accurate) assumptions can help to quantify an upper limit to the near term level of this indirect subsidy.

In 1979 total state and local government spending per capita in Alaska was between $4,500 and $5,000. If 68,700 new basic sector jobs were actually created in Alaska, and if seventy-five percent of these jobs went to migrants who each brought to Alaska 1.5 persons in addition to himself (or herself), and finally if only thirty percent of required new government spending was covered by induced revenue, then the 68,700 new jobs would generate a population increase of 128,812 persons and an **excess** (over induced revenue) annual government expenditure of between $405.8 million and $450.8 million.[1]

Adding in the $1.5 billion direct subsidy previously calculated, the total estimated direct and indirect annual subsidy required to locate the nation's entire 1976 primary aluminum, primary copper, and hydraulic cement industries in Alaska comes to about $2.0 billion.

Now, it is entirely possible that marginal per capita government spending requirements will decline as the State develops and that marginal per capita induced tax revenue will increase. Furthermore, such considerations as market power and assured supplies of raw materials can lower required direct subsidies. However, even if neither effect takes hold, it seems hard to deny the conclusion that as long as the State's ability to subsidize is not impaired, Alaska can significantly alter its industrial landscape through the use of permanent subsidies. The question to which we now turn is whether or not there are reasons to believe that temporary subsidies can lead to permanent economic gains. Certainly, it is a fact that jobs permanently propped up by subsidies, in turn financed by petroleum revenue, only exacerbate the ultimate distress that would be caused by a loss of petroleum revenue.

TEMPORARY SUBSIDIES, PERMANENT GAINS

In this section, the raw ability of temporary subsidies to create permanent job gains is at issue. A related point deserving of much detailed analysis on its own is the question of the timing of subsidies. Clearly, if government development policies simply create a second economic base existing alongside of the State's petroleum based economy (a form of dual economy, if you will), then the absolute number of Alaska jobs and incomes jeopardized by a decline in Alaska petroleum activity need not differ from the number that would be in jeopardy if there were no second economic base. In other words, in the best of all possible worlds new nonpetroleum jobs should be created at a rate that just offsets the future loss of

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1/ 1979 dollars. Assuming per capita spending at the 1979 level.

petroleum based jobs. This point should be taken as one more reason why subsidies, even temporary subsidies, have not as yet been shown to make good economic sense in the final analysis. A case may eventually be made for their use. However, for now, the jury is still out.

In principal, temporary subsidies can create permanent job gains in at least six ways.

1. **Increased Market Share**

   If an initial subsidy leads to the establishment of a significant part of an industry in Alaska (on a national or international scale), the Alaska operators may gain enough market power to enable them to pass their higher costs onto their customers. A case in point is bottomfish. If Alaska processors eventually handle all or virtually all of the bottomfish caught in Alaska waters, as a group they would control an important segment of the world's food supply. Under such circumstances, they could act as price setters rather than as price takers. Removal of the subsidy could then lead to higher product prices and not simply to lower profits.

2. **Scarce Materials, Multi-Price Markets**

   Alaska has been called a storehouse of raw materials. At the present time, the United States imports a high percentage of its strategically important raw materials from potentially unstable or unfriendly nations. Examples include chromium, manganese, tin and zinc.[1] Just as the U.S. Congress has determined that farm price supports are in the national interest, so could it determine that the purchase of (possibly) high priced Alaskan metal is in the national interest, even if lower cost foreign supplies were available. If this were to happen, temporary State subsidies necessary to initially capture certain processing activities may be removable. In essence, the function of subsidizing the venture would either be passed onto the Federal government, or to purchasers in the form of higher prices.

3. **The Bootstrap Effect**

   This effect should be viewed as operable only in conjunction with gains in overall Alaska economic activity. In effect, it says that the total may be larger than the sum of the parts.

   As one result of an overall development effort, certain products which might initially need to be subsidized may eventually be produceable at a normal profit for sale to an enlarged Alaska market at prices below that of imports from out-of-State. The effect in question could either be economies of scale or simply a situation where a small percentage of a larger market is enough to insure profitability. Examples include foods and beverages (reindeer products, beer), cement, and coal. In effect, in-State producers would be partly shielded by the cost of shipping consumer or bulk goods to Alaska.

1/ According to the U.S. Bureau of Mines, the U.S. imports (net) 98% of the manganese it uses, 86% of the tin, 89% of the chromium, and 58% of the zinc. The list of major sources for these metals includes Brazil, Gabon, South Africa, the U.S.S.R., Turkey, Zimbabwe Rhodesia, Malaysia, Thailand, Bolivia, and Indonesia.

4. **Induced Growth**

In addition to normal support jobs which would be generated in response to subsidized basic sector growth, other jobs in industries not strictly of a support nature would come into existence as the Alaska market grew larger. If the ratio of induced government revenue to induced government spending eventually rises above unity (eventually it must, or else there would be no balanced government budgets anywhere), the extra revenue could be used to help to maintain the initial subsidies on the basic growth that started the process. The initial subsidy may stay in place. However, taken as a whole, the new economic activity receives a reduced **net** subsidy. In principal, the net subsidy could ultimately go to zero.

5. **Uniquely Alaskan Products**

With proper marketing, furs, carvings, conceivably even macho Alaskan beer could be sold at a premium price on national and world markets. If marketing efforts were successful, initial subsidies could be phased out.

6. **Lower Cost of Doing Business**

Between 1967 and 1973, the Anchorage Consumer Price Index rose only 98.4 percent as fast as the corresponding national index. After a brief reversal during the 1974-1977 construction period of the trans-Alaska oil pipeline, this trend has reasserted itself.

The cost of doing business in Alaska will decline relative to the cost elsewhere as economies of scale take effect, and as in-State competition increases. To the extent new subsidized development increases the size of the Alaska market, it can be effective in lowering the relative cost of doing business in Alaska, and therefore, it can be effective in removing part of the need for subsidy.

In addition, lower costs of doing business in Alaska can contribute to secondary economic growth of the sort discussed in (4) above. To the extent this happens, net subsidies can decline, possibly to zero.

Finally, it may be that costs are higher in Alaska partly because they have always been higher. New firms must pay the going wage and the going prices of materials and capital and hence must charge prices which are also high. Over time, or through a joint private-public effort, this portion of Alaska's cost disadvantage may decline.

It would be a step ahead if these six effects had already been quantified for a range of development projects. Because the needed quantification has yet to be done for even one project, one cannot conclude that temporary subsidies will indeed work. The strength of the six effects listed above may be insufficient. One should, however, be prepared to conclude that the question is open and deserving of future research.

CONCLUSION

This paper is meant to open the door to an organized discussion of the merits of using temporary subsidies to promote economic development in Alaska. Only two of the many points deserving formal consideration have been addressed. First, it would seem that Alaska does have the economic ability to influence firms to locate here rather than elsewhere. Second, there are a number of ways in which temporary subsidies may lead to permanent job gains, none of which has been adequately quantified for even one project.

The policy conclusions suggested by the observations made here are (1) that Alaska should invest in further research on these issues; and (2) that Alaska should retain a significant piece of its public capital in a fund that can be tapped if and when a case for a particular subsidy is adequately made.